ILLUSTRATED
# ELECTRICAL REVIEW
A Journal of Scientific and Electrical Progress.

VOL. 29. No. 12. WEEKLY. | NEW YORK, WEDNESDAY, SEPTEMBER 16, 1896. | $3 PER ANNUM. Single Copies, 10 Cents.

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## VIEWS, NEWS AND INTERVIEWS.

Meekin was a sight as he limped painfully into the ELECTRICAL REVIEW office and appropriated his accustomed chair. His expression was forbidding, so we all waited for him to speak.

"Had another experience," he finally grunted.

"You look it. Been through a cider press?"

"Worse'n that," said Meekin.

"What?"

"Bicycle."

Then we looked him over. The skin was scraped from one side of his face, his right arm seemed stiff and he limped as to his left leg.

"Tell us all about it," some one said.

"Well, it was just this way," began Meekin. "I read in a paper about some fellow scattering tacks in a road frequented by bicyclists, so that the tires of passing wheels would be punctured. Fellow thought it was a joke. His idea of humor must be like that of a hyena.

"Well, I thought I ought to be able to invent something or other to fool these jokers that scatter tacks. After some thought on the matter I struck an idea and set to work to put it in practical shape. I borrowed my brother-in-law's bicycle and rigged up a fork which projected beyond the front wheel so that the ends were about three inches above the ground. To the ends of the fork I attached an electro-magnet charged from a battery carried under the seat of the machine. The idea was that sufficient pull would be generated in the magnet to attract any tacks or other metallic objects in the roadway before the wheel ran over them.

"Say, that's a good idea, just the same, in spite of my experience. Well, after I got her all rigged up, I bought a paper of tacks and scattered 'em over a half mile of road near my house. The road ran down hill, and there's where I was a fool in not noticing it. Then I got on the bicycle and started down the road.

"Did it work? Why, that's just what ailed the scheme—it worked too blamed hard. Now and then I'd hear a tick, tick, tick. That was the magnet picking up tacks. I got a little enthusiastic and put on more speed. First thing I knew there was a rip, bang!

"The wheel ran into a rock on one side of the road, I went over the handle-bar and the machine landed on top of me. After it got me down, that bicycle nearly kicked me to death. I finally managed to get out from under it and laid three or four heavy stones on it to hold it down."

"What!"

"Well, er, that is, I didn't lay the stones down very gently. Fact is, I've got to buy a new wheel for my brother-in-law. Can you get me a discount anywhere?"

"Nit. What was the matter with your magnet."

"Nothing, only she kept picking up tacks until there was a wad of 'em hanging down that finally jammed between the fork and the tire ——."

"And punctured the tire?"

"Exactly."

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Among other interesting items contained in a recent number of the *Ohio Penitentiary News*, published by the convicts in the State's prison at Columbus, Ohio, is the following:

During the talking hour in the idle house the other day some one asked "Old Daddy" what he thought of this new invention—the horseless carriage. "Oh," said the old man, "that's nothing new to me. I owned one of them vehickles when I was quite a lad." "Was it propelled by electricity?" he was asked. "No," said Daddy; "it was pulled by two billy-goats.".

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"Hundreds of dogs are killed during the course of the year in this city by the street railway cars," remarked a St. Louis motorman to a reporter. "I have killed as many as three in a day. I do not think that there is a motorman or gripman in town who has failed to kill on an average at least one dog in a week. One motorman, the other night, in North St. Louis, killed six dogs all at once. There was a dog fight right in the middle of the track, and before the motorman could stop his rapidly moving car he struck the lot with the fender, with the result above stated. Some dogs get killed by running alongside of the car and barking, and are drawn under the wheels. Others play on the track, and being small the fender fails to catch them. Most of the dogs killed are small ones. Big dogs seem to have more sense. Whenever we kill or mangle a dog we make a report. At the car sheds when the men are off duty they often swap dog stories."

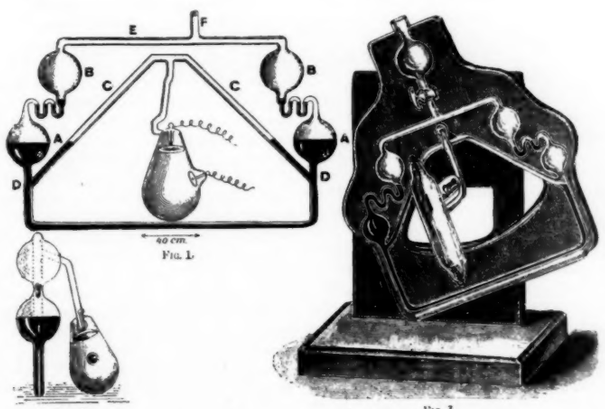


FIG. 1. FIG. 2. FIG. 3.

A SIMPLE MERCURIAL PUMP FOR RESTORING THE VACUUM IN ROENTGEN TUBES.

## A Simple Mercurial Pump for Restoring the Vacuum in Roentgen Tubes.

Mr. R. W. Wood publishes an article in a recent number of *Wiedemann's Annalen* describing the mercurial pump illustrated herewith. The following is an abstract of the article appearing in the London *Electrician:*

The accompanying illustrations represent a mercurial pump of extreme simplicity, designed for restoring the vacuum in Roentgen tubes after it has been impaired in course of time. The pump is double acting, and rubber tubes and valves are avoided. The working will be immediately understood from the diagrams. Fig. 1 is a front view and Fig. 2 a side view of the apparatus. A A are two reservoirs half filled with mercury. By making the whole apparatus oscillate about its center, so that A A are alternately filled and emptied, any traces of air are pumped out of the Roentgen tube into the reservoirs B B. The mercury is originally introduced into the tubes F and E. F is then made to communicate freely with the Roentgen tube by inclining the apparatus until D is above the level of the mercury. A mercury pump is attached to F, and F is fused after exhaustion. Fig. 3 is an improved form of the apparatus, in which a reservoir is attached to F to contain the mercury, to be introduced when required into the exhausted tube system. A trap is also attached to the Roentgen tube to prevent mercury accidentally entering it through C (Fig. 1).

The author is working out a larger pump on the same principle.

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A London exchange states that Mr. Trotter, in a recent lecture before the South African Philosophical Society, plunged a steel knife and a silver fork into an orange, forming a battery by which he was able to send signals over one of the long-distance telegraph lines to Port Elizabeth from Cape Town, including a resistance composed of a row of persons joining hands.

# NEW YORK STATE STREET RAILWAY CONVENTION.

## A Successful Meeting Held at Binghamton.

FOURTEENTH ANNUAL MEETING OF THE STREET RAILWAY ASSOCIATION OF THE STATE OF NEW YORK A VERY INTERESTING ONE —THE PROCEEDINGS—G. TRACY ROGERS RE-ELECTED PRESIDENT —THE NEXT MEETING PLACE IS NIAGARA FALLS.

The fourteenth annual meeting of the Street Railway Association of the State of New York, was held at the Bennett House, Binghamton, New York, Tuesday, September 8, 1896.

President G. Tracy Rogers called the meeting to order at 10.30, and Secretary Frick called the roll when it was found that the following gentlemen were in attendance :

DELEGATES OF STREET RAILWAY COMPANIES.

Allen, C. Loomis, Supt. Track, Syracuse R. T. Ry. Co., Syracuse.
Clark, J. P. E., Mangr. Binghamton, R. R. Co., Binghamton.
Cole, W. W., Mangr. West Side R. R. Co., Elmira.
Cooper, H. S., Supt. Schenectady Ry. Co., Schenectady.
Danforth, R. E., Supt. Buffalo, Bellevue & Lancaster Ry. Co., Buffalo.
Deming, P. C., Supt. Buffalo Ry. Co., Buffalo.
Evans, H. C., Nassau Elec. R. R. Co., Brooklyn.
Frick, Benj., Whitestone & College Point R. R. Co., Whitestone.
Gould, Frank, Prest. Oneonta R. R. Co., Oneonta.
Haven, William E., Supt. Citizens' St. Ry. Co., Fishkill.
Hallock, F. M., Dir. West Side St. R. R. Co., Elmira.
Hallock, H. H., Secy. West Side St. R. R. Co., Elmira.
Johnson, J. M., Secy. Binghamton R. R. Co., Binghamton.
Lamfield, J. B., Vice-Pres. Binghamton R. R. Co., Binghamton.
Maloney, F. J., Supt. Elmira & Horseheads R. R. Co., Elmira.
Moffitt, John H., Gen. Mangr. Syracuse R. T. Ry. Co., Syracuse.
Mooney, F. P., Gen. Supt. Cortlandt & Homer Traction Co., Cortland.
McCormack, Ira, Genl. Supt. Brooklyn Heights R. R. Co., Brooklyn.
McKeever, R. T., Genl. Supt. Fonda, Johnstown & G. R. R. Co., Gloversville.
O'Connor, Edmund, Counsel Street Railway Association, Binghamton.
Rehn, George T., Treas. Hornellsville Elec. Ry. Co., Hornellsville.
Robinson, H. A., Vice-Pres. Metropolitan St. Ry. Co., New York.
Rogers, G. Tracy, Pres. Binghamton R. R. Co., Binghamton.
Rogers, John B., Treas. Binghamton R. R. Co., Binghamton.
Rossiter, C. L., Pres. Brooklyn Heights R. R. Co., Brooklyn.
Rusling, F. O., Gen. Mangr. Rochester Ry. Co., Rochester.
Seixas, E. F., Gen. Mangr. Amsterdam St. R. R. Co., Amsterdam.
Sliney, George H., Purch. Agt. Nassau Elec. R. R. Co., Brooklyn.
Stedman, J. H., Transfer Expert Rochester & Irondequoit Ry. Co., Rochester.
Story, C. B., Supt. Hoosick Ry. Co., Hoosick Falls.
Van Etten, Amos, Counsel Kingston City Ry. Co., Kingston.
Williams, Timothy S., Treas. Brooklyn Heights R. R. Co., Brooklyn.
Younglove, James I., Fonda, Johnstown & G. R. R. Co., Johnstown.

OTHER ATTENDANTS.

Allison, Giles S., St. Louis Register Co., New York.
Beran, T., General Electric Co., New York.
Billings, William R., Taunton Loco. Mfg. Co., Taunton.
Blake, H. W., *Street Railway Journal*, New York.
Brady, Paul T. Westinghouse Elec. and Mfg. Co., Syracuse.
Brown, Harold P., Plastic Rail Bond, New York.
Bruckel, F. W. Johnson Co., New York.
Boyd, J. Coleman, New Haven Fare Register Co., New Haven.
Calhoun, W. S., Brussels Tapestry Co., New York.
Clark, W. J., General Electric Co., New York.
Cockey, Marston R., John A. Roeblings' Sons Co., New York.
Cockroft, C. A., Chenange Engineering Co., Binghamton.
Crossman, T. E., stenographer, Brooklyn.
Crowell, H. H., General Electric Co., Brooklyn.
Davis, Isaac N., Life Guard, Binghamton.
Doolittle, A. B., Flue Cleaner, Binghamton.
Dunning, E. A., representing A. O. Schoonmaker, Mica, New York.
Dutton, W. A., Dorner & Dutton, Cleveland.
Evans, H. C., Johnson Co., New York.
Field, Arthur W., East. Agt. Peckham Motor Truck and Wheel Co., Boston.
Fitch, C. R., Erie Railroad Co., New York.
Flanders, C. Y., Morris, Tasker & Co., Phila.
Frenyear, T. C., Westinghouse Elec. and Mfg. Co., Buffalo.
Granger, J. A., New York Car Wheel Works, N.Y.
Hawes, W. C., Sec. Stow Mfg. Co., Binghamton.
Hammond, C. R., Delaware & Hudson Canal Co., Albany.
Haskell, G. M., J. G. Brill Co., Philadelphia.
Hotchkiss, C.F., Pres. Stow Mfg. Co., Binghamton.
Hurley, Thomas A., Holmes, Booth & Haydens, New York.
Jackson, Newton, Electric Mutual Casualty Insurance Assn., Scranton.
Johnson, F. O., Stow Mfg. Co., Binghamton.
Jones, J. G., Hazelton Boiler Co., Carthage.
Kenfield, Fred S., *Street Railway Review*, Chicago.
Lawless, E. J., American Car Co., St. Louis.
Mailloux, H. Jules, *The Car*, Philadelphia.
Maguire, J. F., Erie Railroad Co., Elmira.
Meek, S. Glen, H. W. Johns Co., New York.
Mercur, R. J., N. Y. Car Wheel Works, Buffalo.
Miner, Willard M., Bi-Metallic Electric Transmission Co., New York.
Nicholson, S. L., Cutter Elec. Mfg. Co., Philadelphia.
Packer, E., Drummond Detective Agency, New York.
Parker, L. H., General Electric Co., Schenectady.
Pratt, Mason D., Pennsylvania Steel Co., Steelton.
Pugh, John S., John Stephenson Co., New York.
Ransom, H. N., Consolidated Car Heating Co., Albany.
Russell, F. D., Rochester Car Wheel Works, Rochester.
Seeley, John A., Belden & Seeley, New York.
Sinn, D. E., Ramsey Signal System, Allegheny.
Sjoberg, Car Woodwork, New York.
Sweet, D. C., Wheel Grinders, Springfield.
Taylor, John, Taylor Elec. Truck Co., Troy.
Taylor, W. H., *Street Railway Journal*, New York.
Vosburgh, A. C., New Process Raw-Hide Co., Syracuse.
Wallace, J. E., Smith & Wallace, Boston.
Washburne, W. A., Cambria Iron Co., New York.
Warton, W. W., Mutual Casualty Insurance Assn., Scranton.
Woodworth, A. C., Consolidated Car Fender Co., Providence.
Woodworth, A. C., Jr., Consolidated Car Fender Co., Providence.

The next order of business being the approval of the minutes of the last meeting, on motion they were ordered approved as printed.

President Rogers then read his annual address, of which the following is an abstract :

We can point with pride to the work of our association as well as to the standing of the street railroads of our State. Each year tends toward better building and conservative management in all departments. While the roads of this State have made a decided gain in gross receipts during the past year, we more than realize not only the importance but the necessity of the most prudent and careful management.

The past year has not been marked by any startling or radical changes in the street railway world. The same tendency toward better building seems to prevail. The extension of roads into the country, the construction and adoption of high-speed motors and larger cars, and the rolling and laying of 60-foot rails, have all been tried successfully. The exercise of greater care in providing for the return current is to be observed, but perhaps the most important advance is in the universal adoption by large plants of the direct-connected generators; indeed, I am informed that over 80 per cent of the generators produced during the past year are of this character.

The experience of the past year has demonstrated that where very long lines of street railways are to be operated, power can be economically delivered 20 miles or more from the power station by the three-phase system and the use of high-tension current. The experience of the past year has also demonstrated that with direct-current machines, longer lines than we had previously supposed can, by the addition of boosters, be operated economically. Some 15 or 20 different roads in the United States are now using this system.

The great city of New York, which should be at the head and front in all matters of progress and improvement, is forced to confess that she is far behind all other cities of the State in modern transportation facilities The fact that she occupies this out-of-date position in respect to the construction of surface roads is not a reflection on the enterprise of the railroad interests of that city, but upon the municipality, because of the restrictions put upon the railroad people by the authorities.

The remarkable growth of traffic in New York city during the past 30 years and the necessity of the most improved facilities for transportation and the best possible method of traction is plainly illustrated in the following table :

TOTAL TRAFFIC.

In 1865, 11 street-car lines carried.... ... 79,618,818
In 1875, 13 street-car lines carried.....140,582,793
(With the elevated's first year, Third and Ninth avenues, 644,025.)
In 1878, 15 street-car lines carried.....169,105,739
(With the elevated open on Sixth and Second avenues, 9,236,670.)
In 1883, 15 street-car lines carried..... 266,164,236
(With elevated carrying 92,124,943.)
In 1893, 16 street-car lines carried.....453,652,964
(With the elevated carrying, 219, 621,017.)

From the Railroad Commissioner's Report of 1895, I find that it has cost all roads of the State 91½ per cent of their gross receipts for operating expenses, interest, taxes and rentals. Ninety-one and one-half per cent of the five-cent fare we receive is four cents, five and three-quarter mills, leaving but four and one-quarter mills profit for dividends. In New York city one can legitimately ride 12½ miles for five cents, transportation .004 per mile; in Brooklyn, 18 miles, transportation .0028 per mile, and in Buffalo, 13¾ miles, transportation .0037 per mile. The street railway in the State of New York today affords the cheapest transportation in the world.

The question of fenders is still confronting us, and is a most perplexing problem. More patents for street-car fenders have been granted during the past few years than for any other class of inventions. It is stated upon good authority that there are upwards of 4,000 on the market. It is the opinion of many street railway men that the fender is a menace.

Your executive committee were anxious that an act be passed regarding fenders. There were a number introduced. The one introduced by the chairman of the Assembly Railroad Committee seemed to meet the approval of the public and was heartily indorsed by your executive committee, but for some reason it never became a law. The street railways are anxious that the State should share some of the responsibility. I stated last year, and still believe, that the best fender for the front end of a car is a clear-headed motorman.

No question is of greater importance to the street railway companies and the manufacturers of equipment and electrical apparatus than that of having some definite standard as regards the rating of motors and generators, and as regards the features involved in application of the same, such as diameter of car axles, wheels, height of car body from track, etc. The steam roads of the country have done much towards fixing standards, and rendering interchangeable material and parts. This gives to the railways, aside from all other advantages, a cheapened cost to the manufacturer, and consequently to the road, due to the reduction of the number of different parts and sizes. These and many other points which will suggest themselves, apply even more forcibly to street railways than to steam railroads.

The pleasant relations now existing between the steam railroad and street railway companies of this State are a subject of congratulation, although in many instances the interests are conflicting.

The report of the executive committee was then presented, from which the following is taken:

LEGISLATION.

Never before in the history of the association has there been such a large number of measures introduced in both branches of the legislature in a single year, pertaining to the organization, operation and maintenance of street railroads. This result is in accordance with the prophecy embodied in the executive committee's report, submitted at the last annual meeting, viz., "with increased number of representatives comprising the next session of the legislature, it is consistent to anticipate the presentation of an increased number of bills affecting our interests." This has been more than fulfilled by the introduction during the last session of the legislature of 87 Assembly and 53 Senate bills, making a total of 140 bills and amendments directly affecting street railroad interests. Heretofore street railroad measures introduced in both branches of the legislature, to a large extent, were so unimportant and even ridiculous in their text and construction that they were not worthy of even passing notice. However, the majority of bills introduced the past year were important in character, and would, had they become laws, have seriously affected the physical and financial operation of street railroads throughout the State.

SPECIAL WORK.

We most heartily approve of the zeal, fidelity and persistency displayed by the officers of this association in advancing and protecting mutual business interests throughout the year. We also heartily commend the counsel of the association, Hon. Edmund O'Connor, and hereby express our appreciation of his activity and effective work in our behalf. We believe that his forcible arguments and wise counsel have proved an important factor in the advancement of our interests. We also desire to commend the general interest displayed by the individual members of this association and their liberal attendance at all hearings and special meetings.

OUR FUTURE.

That this association has a work of importance and usefulness ahead, none who are familiar with its record for the past few years will gainsay. The benefits and advantages arising from intrusting our important general business interests into the hands of a well organized association, equipped to properly care for and foster the same, is apparent. Questions of great moment and emergencies of a grave character are liable to arise at any time, which individual companies might experience great difficulty in confronting, whereas, as an association, the same issues and emergencies might be easily encountered and overcome. A business of the magnitude and extent of the street railroad interests of the State of New York requires careful attention and the combined deliberation of the representative men from the various companies. In view of these facts we urge a membership comprising every company in the State. Our board of officers should consist of men who will devote proper time and attention to the administration of the affairs of the association, and every individual member should take a live, active interest in the association and its work.

While the finances of the association are in good condition at present, and we are entirely free from debt, we believe that a sufficient sum, in keeping with the importance of the organization, should be kept in the treasury at all times to defray necessary expenses and to meet any emergencies that may arise. As the street railroad business of the State increases, the necessity and benefits of the association and its work will become more apparent.

THE EXECUTIVE COMMITTEE.

We recommend that the executive committee be given sufficient latitude in administering the affairs of the association, to enable the committee to act quickly and decisively upon all important questions that may arise, requiring immediate attention, as a meeting of the executive can be called with much less trouble and delay than a meeting of the association.

THE ANNUAL CONVENTION.

An important, if not the paramount, factor in the usefulness of the association is the annual convention, affording representatives of the various street railroad companies of the State an opportunity of forming pleasant acquaintance with each other, discussing important practical questions of organization, operation and maintenance, and a beneficial interchange of ideas.

We are pleased to note an increased attendance each succeeding year, and suggest that, as far as practicable, every company send one or more representatives, including the practical men, to the annual convention.

In view of the increased attendance and volume of business to be transacted, we recommend that two days should be devoted to the convention, in order that one entire day may be given up to the business sessions, and the second day to the entertainment of visiting delegates and guests.

We are confident that the extra day suggested would prove beneficial and profitable, and serve to stimulate and enhance a general interest in the Street Railway Association of the State of New York.

Mr. Robinson moved that the report be received and spread on the minutes, which was accordingly done.

The report of the treasurer being read it showed the following financial transactions during the year:

| | |
|---|---|
| Receipts..... | $6,997 86 |
| Expenses ..... | 6,700 88 |
| Balance..... | $296 98 |

Mr. Robinson moved that the report of the treasurer be accepted and approved. Carried.

The reading of reports was then taken up, the first being by Mr. J. H. Stedman, of Rochester, "The Matter of Transfers." In part, the report read as follows:

"One of the most important things to do and to do promptly, is to educate the average man and woman to ride. That this is largely a matter of education, every street railroad manager knows. When a new line is opened, even through a thickly settled district, the people for some time continue to walk. Bad weather, the necessity of haste or some other thing induces a person to ride once. The next time he rides with less inducement, especially if the cars are clean, the service prompt, and if he does not have to pay more than five cents to get to his destination. So the habit grows, and soon the rule is to ride, when before it was the exception. A liberal transfer system, properly guarded to prevent fraud, pays. This is, I think, now generally recognized. Local conditions and arrangements of lines must be considered in determining the regulations to be adopted. The rules intended to safeguard the company are important. Perhaps equally important is the making of rules broad enough to encourage riding.

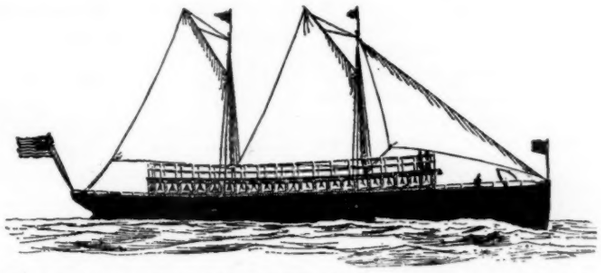
"A large road in Baltimore three years ago employed me to arrange a transfer system. They yielded to my advice to the extent of four transfer points, but I argued in vain for more. One year after, the manager again sent for me and said: "When you urged me a year ago to increase my transfer privileges, I thought you were a fool; but I am now convinced by a year's experience that the fool was another party." The expediency of a liberal transfer system is beyond argument—it is an established fact—it does increase cash receipts. The more liberal, the more advantageous.

"We must, of course, protect ourselves against the abuses of the tickets by the passengers and against the frauds of the conductors. The passenger can be held in check by short-time limit and specific conditions.

"Whether it is better to ring up transfers is a subject which has provoked much discussion. To ring them up does, of course, give them at once a cash value; but not to ring them paralyzes the spotter or detective, and the latter, I think, is generally admitted to be of greater importance. No detective can properly check up a car unless the conductor of that car is compelled by the company's rules to take up cash, transfer ticket or pass coupon from every passenger, and to ring the register for every passenger. The weight of opinion seems now to be to ring up transfers, and preferably on a separate register. Nothing is absolutely a safeguard except the transfer method itself. With a protective transfer guarded by the coincidence of time and consecutive number in sequence of issue, honesty may be secured."

President Rogers: We have adopted transfers on our road, with a great deal of benefit to ourselves and also to the public.

Mr. Moffitt: We have used them on one part of our system in Syracuse for two years and are much pleased. We think they offer an inducement to the public to ride. Families are induced to come out on pleasant afternoons and Sundays and ride for pleasure. We have been educating the people to walk and not to ride. I think the transfer is a means of helping them to get into the habit of riding.



MR. JOHN JACOB ASTOR'S NEW ELECTRIC YACHT "UTOPIAN."—(See page 142.)

Mr. Rossiter: We have a very liberal system of transfers in Brooklyn. I would inquire if any gentleman can express an opinion as to whether bicycles are seriously hurting the revenues of the different roads, and also how you can ascertain whether the transfers increase your cash receipts? We are all in the habit of making comparisons with previous months—the corresponding month a year ago. Of course, the conditions are not the same in any of the larger cities. We might have made doubly as good showing if we had not given any transfers. We carried 2,600,000 passengers on free transfers last month and increased our earnings about $40,000. The other roads in the city, which publish their reports monthly, report a decrease, but there are a number of reasons why we should increase. We give a transfer to a passenger who is riding on a transfer. We have considered this question carefully and believe the percentage is, comparatively speaking, very small where passengers take a second transfer, and if you eliminate certain lines where we do not run our cars direct to the Bridge or ferries, or some other point, I doubt if two per cent of the passengers having a transfer take a second one.

Mr. Deming: In Buffalo, there are a number of lines where it is necessary to give a second transfer, and in some cases a third. Going from the southeastern part of the city to the Park, it is necessary to issue three transfers; one from the Bailey avenue line to the Seneca street line; then to the Main street lines, and then to the Park. We have more or less trouble with the people abusing the transfer system, and it is hard to devise means to stop it. It is a matter which must be left to the intelligence of the conductor, in a great degree; but I do not think there is a very large part of the public that endeavor to beat the transfer system. We find more trouble with them on a pleasant Sunday afternoon when they are riding around for pleasure than any other time. Our system is laid out in such shape that it is possible to ride all day long on a transfer (laughter). I have been studying a new form of transfer, which may put a stop to it. That is the idea of having every street that we run by printed on each transfer. When a passenger gets on one line, and wishes to get to a certain part of the town, he must ask for a transfer to that street, and that transfer is good on any car connecting the two lines. The transfer will be taken up by the conductor, and another issued to the passenger, punched for the same street, and the moment the street is reached the ride ceases. I think we will have to come to something of this kind to prevent them from riding too much. It may work, or it may not work.

Mr. Stedman: Would they not be inclined to "play the limit," and go as far as they wanted to?

Mr. Deming: Not any more so than they do now. I think a good deal of the transfer figuring is problematical; I do not see how you are going to get at it.

President Rogers: Are there any roads transferring from one company to another company?

Mr. Cole: We do that in Elmira, but only on special occasions, when there is some combined attractions at the Park; it is a sort of intermittent affair.

Mr. Robinson: A great deal of difficulty arises in New York from the use of transfer tickets. There are some lines on which persons can get five or six transfers; for instance, go down Lexington avenue to Thirty-fourth street, and transfer to Broadway or Sixth avenue, ride to Twenty-third street, and get a transfer west on Twenty-third street to Seventh, Eighth or Ninth avenues, and ride back to Fifty-ninth street, and get a transfer back on Fifty-ninth street to Lexington avenue, and continue riding all day, if desired. We also have difficulty at the points where we have transfer agents and the tickets are punched. The passengers give the tickets to boys (and the boys sell them) or they put them in places where other people can get them. Some of our economic residents have found various methods of obtaining and using them to the disadvantage of the company. When a Houston street car is approaching Broadway, these gentlemen station themselves along the street, get on the rear platform, conductor is busy, the car crosses Broadway, and the gentlemen walk through the car, go out of the front door, walk over to the transfer agent, get a ticket and ride home. Once in a while a case of conscience turns up. On several occasions we have received refunds of five-cent pieces; evidently from people who used this means of transferring. The travel is so great at some points that it is impossible to use punched tickets, and we have to use them unpunched. Some investigations have been made to see whether people use tickets illegitimately, and, although no record is kept of it, it is found from general observation that the abuse is not great. There are not many transfers to one person of more than three in number; such cases are few and far between.

Mr. Rossiter: What do you consider the result of issuing transfers as to increasing cash earnings?

Mr. Robinson: We consider that on some lines it has been of great benefit; large increase of travel, particularly in the retail dry goods district.

President: I think the general adoption of the transfer system is an indication that the street railroads are anxious to serve their patrons. There is no law compelling us to give the transfers, but the roads have done it, and they have found that in accommodating the public they have increased their revenues.

Mr. Moffitt: What percentage of transfers are received as compared with cash fares? In Syracuse, we carry about 25 per cent of our passengers on transfer, which I think is a low average.

Mr. Deming: In Buffalo, it is from 30 to 35 per cent; about 32 per cent.

Mr. Clark: In Binghamton, our percentage is 22 to 25; a little under 25 per cent.

Mr. Rusling: The Rochester Railway Company used to issue from 35 to 40 per cent. Recently we have introduced a new transfer system, and we now issue from 27 to 30 per cent.

Mr. Rossiter: We issue from 22 to 25 per cent in Summer, and from 16 to 20 per cent in Winter.

Mr. Frick: The Atlantic avenue system in Brooklyn issued from 15 to 20 per cent; 16 per cent the average for nine months in the year.

The paper of C. Loomis Allen, of

(Concluded on page 142.)

### Trolley Men, Steam Railway Men, Lay Judges and the Devil.

In the course of his opening address at the recent meeting of the Pennsylvania Street Railway Association, Hon. B. F. Meyers, president of the association, spoke in part as follows:

The laws under which street railway corporations have been organized and are operated have been a puzzle and a source of annoyance to the judicial mind, and with due respect to some of our friends of the steam railway companies, we must say that the blame for that rests upon them. They have pestered the courts with injunction and equity suits; they have hired the most brilliant legal talent to throw its search-light upon the laws governing street railway companies for the purpose of finding such flaws as will enable them to obstruct the construction and completion of such enterprises. Now, we think that this is all wrong—wrong from our point of view, wrong from the point of view of the steam railroad companies; at least we think they should regard it as wrong.

As the lamented Lincoln was wont to say, this reminds me of a story. I was told this one the other day. It is about an electric railway official who had a dream; a dream that he had shuffled off this mortal coil and descended down to his eternal rest. When he arrived in that place of doom, the monarch of that region treated him very cleverly, very politely, and showed him around. Finally he must have got courage to ask the devil whether there were any street railway people there—trolley people. "Yes," he said there were some. "And I assure you I have a good deal of trouble with them." "What is the matter?" "Well, they want to cross my tramway to the sulphur mines with grades, and I can't permit that." "Well," said he, "are there any steam railroad people here?" "Well, yes, we have some, and we have more trouble with them than we have with the electric railway people. The trouble with them is that every mother's son of them wants to hold a judge between him and the fire." Then he said, "It isn't possible that you have judges here?" "Well, we have a few, but we have no law judges. They are all old lay judges and they are so green that they won't burn. That is the reason that these steam railroad people want to hold them between them and the fire."

### Li Hung Chang and the Fung-Shuy.

In a letter from China last Summer, says a writer in the Chicago *Record*, I told the story of the first railway that was laid in that country, and how the government bought it and tore it up because it interfered with the passage through the air of Fung-Shuy, the spirits of the dead, that are always present and exercise an omnipotent power over the affairs and destinies of mortals.

This superstition cost the government $1,500,000, and Li is supposed to share it with the rest of his race. But he seems to have recovered somewhat, for when he was talking with General Wilson yesterday about the plan for the construction of several lines of road in China, he was asked what they are going to do about the Fung-Shuy. The old man laughed and retorted: "They will have to take care of themselves. We need the railroads more than the Fung-Shuy."

Some years ago, when he constructed a telegraph line between Tien-Tsin and Pekin, the wires and the poles were frequently cut down, and he was put to a great deal of trouble and expense keeping them in repair. Finally he sent for the magistrates of all the villages along the route and told them that the mischief must stop. They replied that it was done by the Fung-Shuy.

"All right," replied the Viceroy, "if the Fung-Shuy cut another wire or pull down another pole I will hang the Magistrate of the nearest village."

There was no more interference with the telegraph after that.

### "Electricity and Water Power" Interests Buffalo.

[*From the Buffalo, N. Y., Illustrated Express.*]

A most interesting series of articles on "Electricity and Water Power," by Mark A. Replogle, has been appearing in the ELECTRICAL REVIEW (New York: Times Building). Special attention has been paid to the utilization and transmission of Niagara's power. These articles are to appear in book form. The REVIEW announces that the volume, of some 200 pages, will be ready in September. It will be welcomed by many hereabouts, where interest in Niagara's work is naturally keen.

### "Electricity and Water Power" in the Classroom.

A school-teacher in Louisville, Ky., writes to the ELECTRICAL REVIEW as follows:

"I have taught my class in electricity and physics with Mr. Mark A. Replogle's articles on 'Electricity and Water Power' as a text book. I am glad that these articles are to be reproduced in book form, as I want to get the book."

### OBITUARY.

Robert C. Laverty, a well known old-time telegrapher and electrician, died at his home in West Philadelphia on September 6. During the war Mr. Laverty, then only 17 years old, entered the service of the government as a telegraph operator, and was with General Grant's command for quite a while before the surrender of Richmond.

### Central Electric Company's Campaign Book.

The Central Electric Company, of Chicago, has issued a handy little pamphlet containing many facts and figures relating to the presidential campaign for 1896. The book contains a great deal of other useful information and is a good thing to have around. A copy may be had free on request.

### OUR CANADIAN LETTER.

HALIFAX, N. S.—The city electrician is preparing an estimate of the cost of remodeling the fire-alarm system.

BELLEVILLE, ONT.—Messrs. Pinkerton and Cook, of Toronto, are negotiating for the purchase of the street railway franchise here.

HAMILTON, QUE. — The Radial Railway Company will extend its line from the power house to Port Nelson, and next Spring it will be extended to Oakville.

QUEBEC, ONT.—There are now about 30 men employed on the construction of the electric street railway. The rails now being laid down on Dalhousie street are merely temporary ones for the purpose of leveling the track, and will be replaced by the permanent rails, which are expected to arrive in the course of a fortnight.

CHAMBLY, QUE.—The Chambly Water Power Company is coming to the front in earnest, and probably in a few weeks' time several hundred men will set at work to dam the Richelieu River at Chambly. Some time since this company gave a contract to the Stillwell-Bierce & Melle-Vaile Company, of Dayton, Ohio, amounting to almost $1,000,000, the work to be handed over complete in the month of October, 1897. Tenders have been invited for subcontracts to the amount of $550,000, and they are expected to be opened within the next few days, and the fortunate tenderer started at once on this great undertaking.

Mr. F. S. Beique, Q. C., of Montreal, Que., is interested in the Chambly concern, as well as Mr. Holt, president of the Montreal Gas Company. The power from Chambly will have to travel about 15 miles to reach the city, but, as the Niagara Falls supply Buffalo with power 25 miles away, the distance from the Richelieu to the St. Lawrence is considered no obstacle to the success of the new undertaking. It is not yet decided whether the river will be crossed by using the Victoria Bridge or by cable, but the latter plan is so much more expensive that it will not probably be entertained.

Work will be begun as soon as the sub-contracts are decided upon, and a large amount of labor will be required during the Fall and Winter months. J. A. C.

Montreal, September 10.

### Must Have the "Review" in Spite of its Sound Money Opinions.

TO THE EDITOR OF ELECTRICAL REVIEW:

Please find herewith inclosed three dollars for subscription to the ELECTRICAL REVIEW from July 1, 1896, to July 1, 1897.

We find the ELECTRICAL REVIEW a good journal on electrical matters and things pertaining thereto, but badly "off" when it comes to trying to teach lessons on finance.

Yours respectfully,

—— TELEPHONE COMPANY,

Missouri, September 2.

### The Telephone as an Aid in Teaching the Deaf.

Dr. Bertram Thornton, medical officer at the Deaf and Dumb Asylum at Margate, England, relates the following telephonic experiments in a recent number of the London *Lancet*: "My experience tends to show that a modification of the telephone promises to be of material use in the education of those deaf mutes who possess a fragment of hearing power, and it has the following important advantages over the single speaking-tube that is sometimes used: firstly, that the wires from several receivers can be coupled up to one transmitter, and thus a teacher can instruct a group of children at the same time; and, secondly, that, as it is not necessary for the teacher to apply his mouth close to the transmitter, the pupils have a full view of his facial expression and lip movements, which is not the case when he has to direct his attention and his voice into the mouth of a speaking tube or trumpet."

### Japanese Investigating Our Telephone Systems.

Messrs. Rinji Nakayama and Yotaro Wadachi, two very intelligent young Japanese from Tokio, are visiting the United States to investigate our telephone systems. Last week they spent in looking over the system of the New York Telephone Company, under the guidance of Mr. J. J. Carty, engineer of the company. They expressed themselves in terms of wonderment at the rapid and efficient service provided for New York city subscribers, and were astonished at the extent and scope of the long-distance service.

Messrs. Nakayama and Wadachi began their tour on the Pacific coast and have visited the telephone companies in all the principal cities, including San Francisco, Sacramento, Salt Lake City, Chicago, Cleveland and Buffalo. From here they go to the New England States, and later will visit the principal European countries on their way home.

### Columbus Central Railway in a Receiver's Hands.

A United Press dispatch from Columbus, Ohio, dated September 4, says that the Columbus Central Street Railway Company has gone into the hands of George H. Worthington, of Cleveland, as receiver. The company is capitalized at $1,500,000, and is bonded for that amount. It has $175,000 in notes and open accounts, and $150,000 due to its president, John J. Shepard, of Cleveland, as liabilities.

The company owns a suburban road and depends largely upon this traffic for its income. The rainy season cut off this income this year and rendered the company unable to meet its obligations to small claimants. These became persistent, and the action taken to-day is at the instance of the bondholders, who are determined to preserve the property. The directors found it impossible to borrow money.

## The Reward of the Inventor.

[*From the London Electrical Review.*]

In the old days men were well content to engage in intellectual competition for the sake of a mere wreath of laurels, or to hammer each other with lance and sword for the possession of a lady's favor. We live, however, in a more sordid age, and there is always a great counting of the cost now and a reckoning of the value of the reward. So great a hold has this commercial spirit taken upon us as a people, that it is said to have eaten into the vitals of our national game. Hence the reproach that an amateur cricketer differs only from a professional inasmuch as the former takes double in ex's what the latter takes in match-fees. We do not propose to predicate whether this state of things is good or bad. We only note that it exists. Of one thing we are quite certain; namely, that the inventor can not afford, such are the conditions of the social life to-day, to be a philanthropist; he must work for gain or starve. And many an earnest worker finds that for want of recognition he is obliged to "scorn delights and live laborious days."

They certainly manage some things better in France than we do. We have no society to which new inventions can be sent to be hall-marked, so to speak, or stamped with the approval of a committee of experts. Now, in France they have. The Société d'Encouragement pour l'Industrie Nationale, founded at the beginning of the present century, owing to the efforts of Benjamin Delessert, exists for the purpose of investigating all useful discoveries, rewarding the efforts of inventors and recommending the application of their labors to those engaged in the industrial arts. Committees of experts in the different industries are formed from amongst the members, and to these committees are referred any inventions which the inventors may wish to have reported upon. The labors of these committees are, of course, arduous, for the French patent office, like our own, is continually pestered by perpetual-motionists and other fadists. Experts, however, very quickly recognize whether there is any value in the inventions submitted to them. The worthless are weeded out and those that look promising are put aside for more careful examination.

It will be seen that the object pursued by this society is, in fact, a close alliance between practice and theory, which, as J. B. Dumas said, are now inseparable. The society is rich and generous. Every year as much as £40,000 are awarded in the form of prizes, and these prizes are so arranged as to afford an opportunity of recompense alike to the discoveries proceeding from the laboratory or study of the scientist and to the inventions originating in the workshop.

In a recent issue of the Journal of the Society of Arts, an account is given of the prizes offered by the Société d'Encouragement pour l'Industrie Nationale. Many of these prizes are of direct interest to our readers, and as some of them are yet to be awarded, it may be interesting to note what they are to be given for.

A gold medal is awarded annually to the inventors, in France or other countries, whose labors have exerted the greatest influence on the progress of French industry during the previous six years, the English recipients having been Sir Charles Wheatstone, in 1873, for physics and the economical arts; Mr. Walter Weldon, in 1880, for architecture and the fine arts,

FIG. 1.—RODRIGUES'S GRENET BATTERY.

and Lord Kelvin, in 1894, for the economical arts.

To perpetuate the memory of the Belgian savant, Melsens, his widow has handed over to the society the sum of 5,000 f ancs (£200) for founding a triennial prize of 500 francs (£20), to be awarded to the inventor of an application of physics or chemistry to electricity, ballistics or hygiene.

The following are some of the special prizes, all of 2,000 francs (£80), to be awarded by the Société d'Encouragement during the next few years. In 1897, for a motor weighing less than 50 kilogrammes (110 pounds) per brake horse-power; in 1897, for a small motor, intended for executing work at home, either independently or connected with a central power station; in 1898, for an experimental study of the physical or mechanical properties of one or more metals or alloys of current use; in 1899, for the discovery of a new alloy useful in the arts. A prize of 3,000 francs (£120) is to be awarded in 1897 by the Société d'Encouragement for an improved manufacture of permanent magnets.

Competitors for the prizes may be of any nationality, but the descriptions, etc., must be written in French and sent before December 31 of the year preceding that in which the prize will be awarded, to the secretary of the society, 44 Rue de Rennes, Paris.

We can assure our readers that in awarding these prizes the society takes no account of nationality. Indeed, amongst the names of prize winners in past years will be found those of a large number of English inventors. Political feeling, however rife it may be at the time, never biases the judges, and those who compete may always be assured of absolutely fair play. We hope, therefore, that many of our readers will bear these prizes in mind and, for the honor of their country, as well as in the hope of obtaining material advantage to themselves, place their inventions in competition with a large number which will be submitted from every part of Europe. Apart from the monetary value of the prizes, which is not inconsiderable, the honor of obtaining one in open competition with all the world would be something unique.

## Rodrigues's Battery and Premier Motor.

M. R. Rodrigues, 19 Whipple street, Brooklyn, N. Y., has brought out a new model Grenet battery, shown in the accompanying illustration, Fig. 1. The jar is two and one-half inches square by four and one-half inches deep. The cover is made in such a way that it serves to hold the carbon plates at the same time, the zinc being suspended at the center. For small motors and light experimental work, where large cells are out of the question, these new cells are useful. One of them will run the Rodrigues "Baby Motor" or the "No. 1 Premier Motor" two or three hours on one charge.

Mr. Rodrigues has also decided to put up a complete set of parts, as shown in Fig. 2, with full directions for making a perfect working model of a motor, precisely the same as his regular "Baby" motors. The height of the motor, from base to center of shaft, is nearly two inches, and it can swing a fan (which is furnished when called for, at a slight expense) of three and one-quarter inches at a good speed with one cell of battery. Directions are included for making a single cell of battery and the solution.

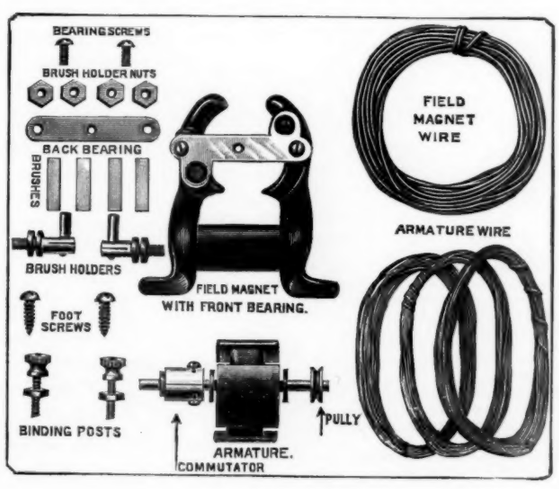



FIG. 2.—CASTINGS FOR "PREMIER" MOTOR.

## PERSONAL.

Mr. L. H. Rogers, of the Adams-Bagnall Electric Company, Cleveland, Ohio, is visiting New York city.

Mr. C. O. Baker, Jr., the platinum man of Newark, N. J., sailed for Europe last Saturday, to be gone six weeks.

Mr. Charles E. Newton, of the Jewell Belting Company, Hartford, Ct., paid a visit to New York city last week.

Mr. Frank S. Marr, president of the Helios Electric Company, Philadelphia, was among the visitors to New York city last week.

Mr. J. H. Rhotehamel, of the Columbia Incandescent Lamp Company, St. Louis, spent the latter part of last week in New York city.

President H. H. Vreeland, of the Metropolitan Street Railway Company, left New York city last Saturday for a trip to the Pacific coast. He expects to return about October 15.

Mr. J. J. Nate, of Chicago, was a New York visitor last week. Mr. Nate is general agent of the Standard Telephone Company, of Madison, Wis., and reports the telephone business as quite active, considering the depressed times.

Ensign James Sticht, of the cruiser "New York," is one of the hardest workers in the navy, and has added the study of electricity and law to his knowledge of navigation. He is now one of the best informed electricians to be found among the junior officers.

Dr. Geo. Mark, of the Imperial Chinese Medical Service, who accompanied Li Hung Chang through the United States as his physician, takes quite an interest in all forms of progress, particularly electrical science. Of course, he reads the ELECTRICAL REVIEW, which goes to him regularly to his home in China.

Mr. Wm. H. McKinlock, president of the Metropolitan Electric Company, of Chicago, paid a flying visit to his friends in New York and Boston recently. The mammoth catalogue of the Metropolitan is in demand still, although issued about a year ago, and with its up-to-date additions is to be found on the desk of thousands of important purchasers.

Mr. James D. Reid, United States Consul at Dunfermline, Scotland, and known to all telegraphers as the "Grand Old Man of the telegraph," arrived in New York September 5, on the American line steamship "St. Paul." The telegraph operator at the Sandy Hook Observatory dipped the United States flag for Mr. Reid, who was a co-worker with Professor Morse.

## The Lightning Bug and the Non-Advertiser.

[*From the Chicago Record.*]

The lightning bug is brilliant,
But he hasn't any mind;
He blunders through existence
With his headlight on behind.

[*The* ELECTRICAL REVIEW'S *Comment.*]

Just so the foolish merchant,
Whom no one can advise;
For he decided years ago
That he'd never advertise.

# Electrical Review

**Times Building, 41 Park Row,**

*P. O. Box 2339.* NEW YORK.

EDITOR:
CHARLES W. PRICE.

ASSOCIATE EDITOR:
STEPHEN L. COLES.

REGISTERED CABLE ADDRESS:
"ELECTVIEW," NEW YORK.

1546 "CORTLANDT," TELEPHONE CALL.

Subscription to the
ELECTRICAL REVIEW.

One Year, United States and Canada, - $3.00
One Year, Foreign Countries, - - 5.00
Single Copy, - - - - - - - .10

Copies can only be supplied for one year back at 25 cents each.

NEW YORK, SEPT. 16, 1896.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One by one the horse cars have disappeared from the towns and cities of the country, until there are only a few belated quadrupeds left in the business. Progressive New York has more horses at work hauling street cars, we are sure, than are to be found in all the other cities of the United States. Poor New York!

It is not an indication of hard times that the entire floor space, amounting to 30,000 square feet, set apart for exhibition purposes at the St. Louis street railway convention, has been taken by exhibitors. Additional space has been secured and other exhibitors are coming in. The convention in October promises to be a rousing one.

We have received a copy of *Mesny's Chinese Miscellany*, published weekly in English at Shanghai. The subscription price is announced as "twenty Mexican dollars." Either newspapers are high or silver dollars are low in China. It contains the following reference to Li Hung Chang, who recently visited the United States:

"Li Hung Chang, born A. D. 1822, hails from the township of Tien-pu, county Ha-fei Hsien, prefecture of Lu-chou Fu, province An-hui, China. Tall, fine foreign-looking, intelligent and very capable man, rather vain and desirous of adding to his stature two or three inches by wearing very thick soled boots. May his shadow never grow less." We confess to a liking for the unconventional personal description of our Chinese contemporary.

A financial writer says that the total mileage of steam railroads on January 1, 1896, was 179,821, an increase of about only 1,800 miles for the year. The mileage of street railways was 15,956, a larger actual increase than that of the steam railroads, and a far greater increase proportionally. The total capitalization of the steam railroads of the country is in round numbers $5,180,000,000 in stock, and $5,600,000,000 in bonds. That of the street railways is $828,000,000 in stock, and $525,000,000 in bonds. It is easy to see what would be the result if all the street railways could enter into direct competition with the steam roads.

The question of transfers continues to be one of absorbing interest to all electric railway companies. A great deal of information on the subject is contained in our report in this issue of the proceedings of the street railway convention at Binghamton, N. Y. Mr. Stedman, who is an authority on transfers, made a few remarks which brought forth some very practical discussions.

A number of electrical companies have recently sold bonds to secure funds for improvements in plant which will be made this Fall. The business situation is becoming settled, the future is discounted as safe, and as soon as McKinley's election becomes a positive fact, extensions in all directions will be made.

Lord Salisbury is said to be an enthusiastic scientific amateur in electrical matters—quite as good if not better than many men who make it a profession.

### *ELECTRIC TRACTION ON THE BROOKLYN BRIDGE.*

There is a comfortable suggestion of progress in the announcement that a number of cars, fitted with electric motors, are nearly in readiness for use on the Brooklyn Bridge. Anything that will improve the service on this short but important railway will be welcome. The introduction of electric traction will be a step in the right direction, but even after the cars are on hand it will probably be several months before the new system is got in operation, even experimentally. It takes a great deal of time for the Bridge authorities to do anything. A good many people would like to know why this is invariably the case.—*New York Tribune.*

We hope to see a very noticeable improvement in the management of the Bridge. The first intelligent advance made in recent years was through the adoption of the electric light, due to the energetic persistence of Mayor Schieren, of Brooklyn. The adoption of the electric switching system, now being introduced, is probably but a forerunner of the permanent adoption of electric power throughout. Then when the elevated railway and trolley lines of Brooklyn may pass over the Bridge, this important thoroughfare will begin to fill its proper mission.

We have already expressed our belief that the compressed-air motor cars now being experimented with in New York city will not be a commercial success, and that we do not think an air pressure of 2,000 pounds to the square inch can be safely or economically handled. In this connection a correspondent states that not long ago he had a conversation with Mr. George Westinghouse, Jr., on compressed air as a motive power. As is well known, Mr. Westinghouse is an authority on air brakes. He is quoted as saying that in the successful working of air brakes trouble enough was encountered with a pressure of 100 pounds to the square inch, and left it to be surmised as to the difficulties which would arise when the attempt was made to work with 2,000 pounds pressure.

We belie e in "getting together," and extend to the convention of the police and fire-alarm telegraph superintendents in Brooklyn this week our best wishes for an instructive meeting and permanent organization. A full report will appear in this journal next week.

The ELECTRICAL REVIEW'S latest editorial on the political and business situation has been widely quoted and commended.

The wave of good business has begun to roll.

### The Wurts Switches and Circuit-Breakers.

The Westinghouse Electric and Manufacturing Company are to exhibit at the St. Louis street railway convention, in October, a complete new line of switches and circuit-breakers, designed by Mr. Alex. Jay Wurts. The instruments are remarkable for ingenuity and tasteful design, and will, it is said, entirely revolutionize the trade in this class of instruments.

The switches are especially remarkable for their novel method of making contact and for their great carrying capacity, occupying, as they do, only half the space of an ordinary switch.

The circuit-breakers are designed on entirely new principles, every detail of which has been most carefully worked out and perfected by the inventor. The distinctive features are the absence of contact jaws and solenoid, the delicate ease of adjustment over a wide range and the ingenious manner in which all possibility of burning at the main contacts is avoided.

It is expected that these instruments will prove the center of attraction at the convention. A beautifully illustrated pamphlet, descriptive of the instruments and new principles involved, is now being prepared and will be ready for distribution among the many friends of the Westinghouse company who will attend the convention.

### Elias E. Ries.

Mr. Elias E. Ries, formerly of Baltimore, Md., has removed to New York city, and has opened an office as consulting engineer and electrical expert at Room 1031, Temple Court. Mr. Ries is well and favorably known to the electrical profession as a scientific investigator and technical expert of no mean ability, and there is scarcely a branch of applied electricity in which he has not done valuable original work. Mr. Ries is an active member of the American Institute of Electrical Engineers and other technical societies, has been a frequent contributor to the electrical and engineering press, is himself an inventor of marked capability, and has an extended practical experience which well qualifies him for his new field and which fully merits the success that we have no doubt he will achieve.

### American Electro-Therapeutic Association.

The sixth annual meeting of the American Electro-Therapeutic Association will be held in Allston Hall, Clarendon street, near St. James avenue, Boston, Mass., on September 29 and 30, and October 1, 1896. Members of the medical profession, whether members of the association or not, are cordially invited to attend the sessions of the meeting, which promise to be very interesting. The secretary of the association is Dr. Emil Heuel, 352 Willis avenue, New York city.

The Chicago Edison Company has closed a sale of $1,200,000 new five per cent 30-year gold bonds. The proceeds will go into improvements.

## TELEPHONE NEWS AND PROGRESS.

The Providence, R. I., Telephone Company has introduced the measured-service system.

Mr. John H. Cahill, secretary of the New York Telephone Company, sailed for Europe on September 5.

The Erie Telegraph and Telephone Company made a net gain of 331 subscribers in August, making a net gain for the eight months of this year of 1,823. Total connected September 1, 20,414.

An evidence that the holdings of American Bell Telephone Company's stock are widely scattered is the fact that in typewriting a list of stockholders it required 119 sheets of paper, foolscap size, allowing 31 names to a sheet.

The business of the Central New York Telephone and Telegraph Company was greatly confused by the fire which recently destroyed the Wieting Opera House in Syracuse, N. Y. As their offices are in the Wieting block, a large number of wires and cables were burned and broken. When Superintendent W. L. Burdick had looked the ruins all over he declared in his estimation the loss to his company would be at least $3,000. It is covered by insurance. Fifteen large cables were cut off. Mr. Burdick telephoned to New York for cablemen to come on at once, bringing material, including several thousand feet of cable, with them to repair the damage. Besides this every local man available to the company was put at work on the lines. The New York men and material arrived in Syracuse on the newspaper train, which reaches the New York Central station at 12.10 P. M. At 8.30 A. M. five long-distance lines, connecting with Onondaga Valley, were up and the lines to Cortland and the Tully brine wells were in use, the latter two being in a temporary Okonite cable. At noon the west and south lines to Tully, Lafayette, Marcellus, Auburn and Skaneateles were re-established. The following day all connections were re-established.

### A. L. Bogart.

Mr. Eugene E. Bogart announces that he has purchased the stock, patents, lease and good will of the business of the late Abraham L. Bogart, lately deceased, and will continue the business under the same well known name of "A. L. Bogart," at the old stand, 22 Union Square, New York city. Mr. A. Livingston Bogart will continue to superintend the practical and mechanical departments. The electrical specialties bearing the name of A. L. Bogart have been famous for their excellence for many years, and the trade in general will be pleased to learn that their manufacture will be carried on by the late Mr. Bogart's sons, who have been for a long time connected with this firm.

### ITEMS OF INTEREST.

A suit has been instituted for the appointment of a receiver for the Baltimore & Catonsville Construction Company, of Baltimore, Md.

The Edison Electric Illuminating Company, of New York, is making considerable extensions in its underground service on the upper west side of the city.

The C. & C. Electric Company, 143 Liberty street, New York city, has been awarded the contract for installing a 50-kilowatt lighting plant in the building at 117 Walker street, New York.

The earnings of the Edison Electric Illuminating Company of New York for August, including the high-tension systems, were as follows:

| | 1896. | 1895. | Increase. |
|---|---|---|---|
| Gross, | $155,016.91 | $134,274.05 | $20,742.86 |
| Net, | 64,379.31 | 54,742.10 | 9,637.21 |
| Gross, 8 mths. | 1,417,812.87 | 1,285,915.83 | 131,897.04 |
| Net, " | 676,182.86 | 604,278.01 | 71,904.85 |

The Palmyra, N. Y., Light and Power Company have in course of construction a new plant, the present one being unable to supply the wants and needs of the people of Palmyra. The new plant is expected to be in operation by October 1. Mr. W. D. Wilcox is superintendent.

Col. Francis V. Greene will discuss in the October *Scribner's* some of the broader principles which should control the commission in perfecting the charter to govern Greater New York. He calls this "an opportunity for constructive statesmanship that has not been equaled in importance since the adoption of the Federal Constitution in 1789." The paper will interest dwellers in all great cities.

Lake City, Fla., is now beautifully illuminated by electricity. There is an arc light at every street-crossing 210 feet apart, and on the side streets there are 16 candle-power incandescent lamps at every corner. Most of the business houses and many private residences are also connected and will be lighted up. Mr. W. R. Rush, of the Lake City Water and Light Company, deserves much credit for the project, as also do Messrs. Lucius Fielder, Ed. O. Powers and N. H. Cox, who did the work.

The Consolidated Street Railway, of Fort Wayne, Ind., was thrown into the hand of receivers on September 8, on motion of the president, John G. Shepherd, and director, F. De Haas Robinson, of Cleveland. The M. J. Degnon Construction Company filed a lien of $85,000 against the property. J. H. Bass and M. S. Robison, director and general manager, respectively, are named as receivers. The embarrassment is but temporary, and the company will pay 100 cents on the dollar.

### McGuire Manufacturing Company Burned Out.

On September 10, fire destroyed a part of the McGuire Manufacturing Company's plant in Chicago. The company made street railway car trucks and supplies. The contents of the building, 300 by 100 feet, were completely destroyed, but the walls were left standing. The loss is estimated variously from $25,000 to $75,000; said to be fully insured.

### The Association of Police and Fire-Alarm Telegraph Superintendents.

The first meeting of the superintendents of police and fire-alarm telegraph was called to order on September 15 in the banquet hall of the Clarendon Hotel, Brooklyn, N. Y., to effect a permanent organization. The programme for the afternoon included a trip to Rockaway Beach, where a shore dinner was to be served. Acting Mayor Clark and City Clerk Benjamin, Brooklyn, were to address the meeting. The entertainment for the evening was to consist of a theater party given by Superintendent F. C. Mason, of the Brooklyn police department telegraph bureau.

Wednesday afternoon was to be devoted to a trip down New York Bay and around Staten Island. The following gentlemen, the majority of whom had signified their intention of being present at the first meeting, have applied for membership in the association:

Boston, Mass., B. S. Flanders; Baltimore, Md., T. Lemon; Bridgeport, Ct., Wm. A. Barnes; Buffalo, N. Y., Henry Smith; Brooklyn, N. Y., Jas. Wafer and F. C. Mason; Chicago, Ill., John P. Barrett; Cincinnati, O., J. H. Archibald; Cleveland, O., Jerry Murphy and R. L. Palmer; Corning, N. Y., F. P. Foster; Columbus, W. H. Murphy; Cambridge, Mass., C. F. Hopewell; Dallas, Tex., W. A. Fraser; Dayton, O., D. C. Larkin; Elmira, N. Y., Will Y. Ellett; Jersey City, N. J., John Speidker; Macon, Ga., C. H. Humphreys; Minneapolis, Z. T. Morrison; New York, J. Elliott Smith; Newark, Adam Bosch; New Haven, W. C. Smith; Omaha, Neb., E. F. Schurig; Pittsburgh, M. W. Mead; Portland, Me., L. L. Cummings; Rochester, N. Y., C. R. Barnes; Richmond, Va., W. H. Thompson; San Francisco, Cal., Wm. R. Hewitt; Springfield, Mass., S. L. Wheeler; Savannah, Ga., W. D. Claiborne; Syracuse, N. Y., M. Jervis Meyers; St. Paul, Thos. Carey; Trenton, N. J., C. E. Drake; Tampa, Fla., J. P. Ahlers; Troy, N. Y., J. Knibbs.

### An Unusual Trolley Accident.

Rufus Goodwin, of Reading, Pa., was recently the victim of a very unusual trolley accident. He was going to Ashland via trolley and went to the rear platform and leaned out of the car window. The trolley rope with plenty of slack was dangling through the window and when the trolley jumped off, the rope suddenly went upwards, wrapping around Goodwin's neck. The trolley having a powerful spring Goodwin was dragged through the window with considerable force and was suspended in midair. Finally the noose slipped and he fell senseless to the ground. Goodwin was carried to a nearby house, where he recovered, but could not speak, as the rope had caught him under the chin so suddenly that his teeth had nearly severed his tongue. When the doctor arrived he sewed the tongue, but still Goodwin could not speak, and after a hasty examination the physician said that the sudden jar on the neck and jaw impaired his speech, but that he would recover it, which proved to be the case a few hours later.

## LONG-DISTANCE AND HEAVY-DUTY ELECTRIC RAILWAYS.

READ BEFORE THE PENNSYLVANIA STREET RAILWAY ASSOCIATION, ALTOONA, PA., SEPTEMBER 2, BY F. W. DARLINGTON.

This subject may be treated at length from two standpoints, the scientific and commercial, either of which to fully discuss would take up more of your time than I feel justified in doing to-day. I will, therefore, occupy you with glances at both sides of the subject, and call your attention to a few of the important thoughts which I deem pertinent to the times, and of supreme interest to all of you who have roads—suburban, interurban and local—to operate and earn dividends therefrom.

There are already in operation many long-distance and also some heavy-duty electric railways. The majority of these roads do not fairly come within the scope of this paper, for the reason that they have been built as ordinary trolley roads, with roadbeds insecure and unsafe for high speeds. Our subject refers more properly to roads designed to supplant the steam locomotive both for high-speed and heavy freight service.

Some few roads have been built, which, though not longer than 10 or 20 miles, and consequently not long-distance roads, yet are convincing proofs of the ability of the electric motor to perform all work demanded of a steam locomotive. These roads have been installed as experiments and by such corporations as the P. R. R. Company, the N. Y., N. H. & H. R. R., and the B. & O. R. R., and, with all the success obtained on these, the corporations named are yet unconvinced of the advisability of adopting electricity for their entire systems.

This incredulity is not prejudice in favor of steam as asserted by many writers, for the men at the helm of affairs in these big companies are too broad-minded and too alert for the companies' interests to be blinded by prejudice. Their slowness to be convinced is to be attributed more to the lack of proofs of its desirability from their point of view, as handlers of heavy traffic.

The first electric railway motors were designed to supplant horses in street railway work, and from this point the advances have been made by meeting and overcoming difficulties, long since met and overcome by the steam railroad man.

For it must not be forgotten that the first railroads were horse roads and, when the steam locomotive was put upon them, it had to undergo changes, and its use necessitated alterations in the construction of cars and road-bed.

Does it not seem absurd, therefore, to ask steam railroad men to go backward some 50 years and begin over again, for this was the proposition advanced when they were asked to take hold of the subject in the shape it was only two years ago. It is to the method in which the question has been taken hold of by these men that is due the credit of the advanced position the electric motor holds today as a rival of the steam locomotive.

So far as the motor alone is concerned, there is no longer a possibility of doubting its ability to do the work of a steam locomotive. It can make a car move as fast and faster. It can pull heavier loads by reason of its power being supplied from some exterior source, and hence, having practically an unlimited supply, it can climb steeper grades, and it can reduce expenses. Can more than this be asked of it? I think not.

There remains, however, the question of how to transmit the electricity from the stationary engine and boiler plant to the motor on the car. It has been proved beyond doubt that power can be developed in a stationary power house at a very large saving of coal and other expenses. Of this fact, and that of the ability of the motor to do all the work demanded of it, there is no difficulty in convincing the steam railroad man. But the inability to prove beyond a doubt that the power can be transmitted satisfactorily for long distance is where the failure lies. This is the one point to be worked out and demonstrated before there will be any general adoption of electricity for long-distance roads.

There have been many theories advanced and systems proposed, but as yet but an insignificant number of them have been tried, and they only for very short distances.

This question must be solved, and all are looking for the solution in the alternating-current system; but whether this or the direct-current system is the solution, is still an open question. There are many who think that the *only* solution is to come from the alternating current, but in the meantime devices are being added to the art that tend to make the direct-current more and more of a success in overcoming long distances. Ultimately, no doubt, the ideal alternating-current system will be at our service, and by the ideal system I mean that one requiring no actual current-carrying contact between the car and the track; in other words, some modification of the induction system. But, unless this system is developed and made practical before long, it will find the older direct-current system so well established and so generally in use that it will be difficult to have it adopted, except for new roads, for it must be borne in mind that the depression in the financial situation for the last two years is the reason, more than any other, that steam roads have not been changed to electricity. So that with the country enjoying even moderate prosperity there is sure to be extensive and widespread experiment in this line, and it is not too much to say that in five years' time there will be such a change in the minds of financial and railroad men that there will be a rush to obtain the benefits of the reduced operating expenses to be derived from using electricity.

This assertion may seem wild and romantic, but any close observer of the thought and the attention given this subject by the large steam railroad companies will bear out this statement.

The statement does not mean that people will go wild over it, for that period in electric railroad history is past and all should be thankful for it. But it does mean that with money available there will be a general start to equip both long and short roads, and the start once made, the work will be pushed on increasing numbers of roads, which, taken all together, will constitute the equivalent of a rush.

The same conclusion is reached when it is remembered that the very conservatism of the steam railroad man, of which so much is said in electric circles, will keep him and has kept him from adopting electricity until that same wonderful power shall have demonstrated its ability to do, and do continuously and satisfactorily, all of his work. This demonstration once having been made, and made in the manner those engineers abreast of the times are confident it will and can be made, that is, to prove beyond all possibility of doubting that money can be saved by discarding the steam locomotive for the electric motor, even when such change requires an enormous outlay of new money, then the conservatism must give way to progress, and all will be only too anxious to obtain the advantages to be gained.

What has all this to do with suburban and interurban railways as existing to-day? It is a question of vital interest to all those companies operating such roads. For all managers of local roads, whether they be running between towns or are purely local, if they, in any measure, parallel steam roads, have this fact staring them in the face, that it is only a matter of time, and a short time at that, before they will have real competition from those same roads, whose territory they so profitably invaded.

They (the local managers) must know that a trunk line, supplied with such power as it will require, can be tapped at any point to run a local road or branch line, at but small expense in comparison with that required to operate the local road independently. Then, too, let him think what it would mean to him to have a competing line with frequent service, and maintaining high speed on safe road-beds.

All these things must be faced sooner or later, and, while the above statement may seem alarming, yet it need not be so to the wise manager, who will keep his eyes open and prepare himself in the time at his disposal.

Just what this preparation consists of will have to be worked out by each individual. But it is very safe to say here that one of the most important points he will have to consider will be that of expenses; he will have to reduce coal bills and bills all along the line. He will also have to guard well his policy of management, but as this point is not included in the scope of this paper it will not be elaborated upon, though there are interesting points for discussion which might be brought out.

The question of expenses is mentioned here for the reason, it is safe to say, that at least 75 per cent of the electric railroads in this State are paying too much for their power. By power is meant available power at the car axle. Some develop power cheaply and waste it on the line; others may develop it at high cost, while they distribute it, and utilize it, economically; while others again may be losing at only the motor end of the line.

Then again, some roads may be so full of heavy grades they may be eating up their earnings in maintaining them.

At any rate, the fact remains that few, if any, are paying dividends, and many are in the hands of receivers, when it would be possible to make all pay, excepting, of course, those wildcat schemes floated to fleece people of their good dollars. The sooner these latter are weeded out or reorganized on a more reasonable basis, the better it will be for all. There is one thing very sure, and that is, that there is no excuse for any electric road, not saddled with interest for imaginary money spent, to spend more in expenses (which includes salaries and interest) than its receipts amount to.

The reports obtained from many roads vary to such an extent that it is impossible to assume any given amount at any given place without knowing the conditions existing there.

It might be stated here, that a car mile should be produced for a given number of cents, based on these reports, and nothing of real value towards the solution of the question at hand would be gained, for all the calculations and reports made on power questions have been based on results at the power house, or at the switchboard, which is only a part of the proof, for they take no account of interest or line losses and motor repairs, which are all necessary for determining definitely as to the cost of a car mile. For of what use is it to calculate your power in kilowatt hours at the power house, and in that calculation consider only your coal, water, supplies and labor, when you omit all account of your interest except as a lump sum. And of what use is it to define your motor repairs and car expenses in car miles when here, too, you lose sight of interest.

How can you tell how these several items compare unless you base them all on the same unit. This unit should be in car miles, for expenses of every description, and when they are so calculated you have the true basis, for all expenses are incurred for the one object of propelling cars a certain number of miles.

By this means the manager can determine the value of each department under him, and when economies must be undertaken he knows exactly where to turn to accomplish them.

It would also enable the manager to at all times tell in what shape his engineering force was; whether his

engineer was competent and if he was attending to his duty. Again, he would be able to calculate to a nicety what each improvement would cost and in what way it would benefit him. His receipts being readily reduced to earnings per car mile would enable him at a glance to determine the prospects of his road.

All these points are of importance to know, in order that the manager may keep himself posted as to the working of his system as a whole. The managers who do this are not many, and why they do not is to be attributed to the fact that the necessity for so doing has not been made clear to them. There are many who keep elaborate books with the expenses divided up into different classes, when they are principally only of value to keep the book-keeper busy, and really do not enlighten any one as to the scientific conditions of the road.

This association can broaden its scope of usefulness to its members, and at the same time advance the interests of all electric roads, by appointing a committee to gather data from its members and tabulating them, by numbers, not names, for it is not wise or of value to publish the names of roads making reports, and it is not necessary.

This committee can then digest the reports and each year draw impersonal conclusions for the benefit of all. This same method is employed by the National Electric Light Association, and though it has been in use only a few years it has proved a great benefit to those desiring to avail themselves of its lessons. It will be well to return once more to the subject of grades and curves, to say that both are expensive luxuries, not only because they cost more to maintain than straight, level road, but also because they are more expensive to operate, and are the cause of greater original investment, and, as we have seen in the case of the C. & D. R. R., they may be the source of many and expensive damage suits.

Suppose A and B each build a road from X to Y and A builds his with long radius curves and as little grade as possible, say a maximum of one per cent, while B does not appreciate the gain in this method and so has some heavy curves and some heavy grades. What will be the result? It is well known that it takes more power to climb the hill than to run on a level, but you say that the motor on the level averages the same power for the whole round trip. That is true, but here is the point, for A can do his work with smaller motors which will be running more continuously and will be calling for a more even supply of power from the power house, which in itself will be a source of economy both at the motor and at the power house.

B will be drawing power intermittently and creeping up the hills to rush down the other side at great risk.

B's motors will cost more than A's because of their larger size, and B's engines and generators will have to be larger. His feeders must be larger. Just what these several items will amount to can be determined, and I maintain that they should be calculated before a road is built, and the economical grades figured out.

When it comes to competing with the steam roads as they exist to-day, the electric road attracts local travel because of its cars being run at frequent and regular intervals, whereas a traveler must consult a time-table before taking a train on a steam road. Again, in Summer time the electric road offers the additional inducement of a cool, clean ride, while on the steam road, if one opens the window for fresh air he is treated to a shower of coal dirt, cinders and dust to such an extent that when the journey is over the passenger is more uncomfortable than when he started.

All this is destined to change, however, for the undoubted tendency of steam railroad travel between large cities is to move trains at more regular and more frequent intervals. This is indicated by time-table records for some years back. The clean travel will come when electricity is adopted.

The question of the real meaning of the difference in number of trains running on competing roads is shown very clearly on the roads operating between Philadelphia and New York. Of these two roads the Pennsylvania gives by far the most trains, and the result is that it gets the most of the travel. This is natural, for the reason that a man bound to New York from Philadelphia will buy his ticket by the route that will give him the greatest choice of times to start on his return. Carrying the comparison farther, suppose an electric road was built between the two cities and built so that it could land passengers in New York as quickly as the steam roads, and a train service every fifteen minutes or a half hour be maintained, there is no doubt that it would get the bulk of the travel.

As for speed, if a speed of 72 miles an hour can be obtained on a road seven miles long and maintained for three miles, as has been done on the electric road installed by P. R. R. Company, in New Jersey, it certainly would be no more difficult to obtain a speed of 80 to 90 miles an hour on such a road-bed as is possessed by the P. R. R. on its Philadelphia-New York line.

As for the length and weight of train, the same road has demonstrated that it can handle a train of three cars, *i. e.*, motor car and two regular Pennsylvania day coaches as trailers, and fulfill its schedule requirements.

I have observed with interest the fact that the majority of trains leaving the Broad Street Station, Philadelphia, are composed of a combination car and two or three trailers, and that trains of more than four trailers are not frequent. It therefore seems to indicate that a motor car of sufficient capacity to draw these trailers at the desired speed could be made a standard and do all the work. This might necessitate making two sections of the through trains, but this would prove a benefit to the traveler, especially if the two trains were scheduled to run at different times.

Right here it might be interesting to consider what we are to have in the place of the steam locomotive. It can be demonstrated conclusively that, when we discard the steam locomotive, the most economical and convenient method will be to put the motor under a baggage or combination car, for, if we attempt to follow steam railroad practice and carry enough weight on an electric locomotive to provide traction for a train, we will have to add useless weight, and one of the chief sources of economy of the electric system over the steam is from the reduction of the weight of train. The weight can be done away with because of the fact that the *even* pull, at a tangent to the circumference of the motor armature, produces an apparently greater possible traction effort per ton of weight, and in addition reduces the tendency of the wheels to slip at starting.

This feature of the electric motor is the one above all others that established the fact that it has come to stay, no matter what developments may be made in air, gas or other motors which have to convert a reciprocating into a rotating motion.

And the fact that an electric motor, supplied directly from a central power house, gives to that motor a practically unlimited supply to draw from, puts it far ahead of any motor which carries its supply on its back, whether it be in air tanks, storage batteries, oil reservoirs or coal and water bunkers. Any storage reservoir must be refilled, and this takes time. And all time used in this way is dead loss and means that the motor can not make as many miles in a day.

One more point in favor of the electric motor is that where they are equipped with double motors and two controllers there is no one thing can happen to prevent the motorman from getting his train to its terminus, for with the modern apparatus he can cut out the motor, or line, giving trouble and proceed with one motor. To be sure, his speed will be decreased, but still he will be able to move his train, whereas in any of the above cases there are a number of accidents, and trivial ones—that may happen to cause the train to wait for a new motor. Of course, the question of the supply line, or feeder system, is ignored in this statement, but with the advent of electricity on steam roads will undoubtedly come a feeder system practically impossible to interrupt.

The question arises when considering cars for high-speed work as to what kind of motor trucks should be used.

The advocates of maximum traction trucks refer to the steam locomotive as their model, but there are some principles in use on the steam roads which we must avoid, and this is one. The steam locomotive is of necessity a maximum traction machine, but it has been demonstrated that a car can be started and propelled with less power, when the trucks have a motor on each axle (*i. e.*, four motors on an eight-wheeled car), than where equipped with a motor on each pair of axles (*i. e.*, two motors to an eight-wheeled car), and this, too, when the four motors are of greater weight than the two larger motors.

The so-called maximum traction trucks with one pair of small wheels are lately provided with some kind of device to hold down the small wheels, to keep them from jumping the track. This deprives the truck of most of the efficient traction obtained by putting the weight nearer the axle of the larger wheels, so that the results obtained are practically no better than were the light wheels made the same size as those carrying the motor and the weight of the car placed centrally over the truck.

It will be noticed, too, that a maximum traction truck rides more roughly than a regular truck; this for the reason that the car support is placed more over one axle than the other and thus gets practically the same hammer motion that the motor does, and does not get the relief given by equalizing and dividing the motion of both axles, as found on regular trucks. In this question of trucks, as we approach nearer the practice of steam roads in other respects, we will find it to our advantage to be guided by their experience and not attempt to drag with us the crude ideas heretofore held. It is only just to say here that most builders of trucks have recognized this point since the building of these roads, mentioned at the beginning of the paper, and have been trying to educate their customers to this belief, and with some measure of success.

In closing, I will remind you that the era of long-distance, high-speed and heavy-duty electric railways is at hand. The first experiments have been made and steam railroad men are awake to the facts. And those of you having roads that must come in competition with them must bear in mind that the steam railroad men will bring to the subject an experience of great value, and that there are certain matters in connection with your roads that will bear your closest inspection, such as power house, distributing system, motor repairs, track, grades and trucks.

### Patent Office Report.

Commissioner of Patents John S. Seymour has submitted to the Secretary of the Interior his report on the business of the Patent Office for the fiscal year ending on last June 30. It shows 48,105 applications and caveats received, 24,585 patents granted and trade-marks, labels and prints registered, and 15,580 patents withheld and patents expired. Receipts from all sources during the year were $1,307,090, and expenditures $1,097,368, leaving a surplus of $209,721. The balance in the Treasury of the United States on account of the patent fund on June 30, 1895, was $4,566,757, making a total with the 1896 surplus of $4,776,479. Applications awaiting action number 8,943.

## NEW YORK STATE STREET RAILWAY CONVENTION.

(Concluded from page 135.)

Syracuse, on "General Track Construction, and the Most Approved Method" was then read.

The next topic was the paper by Mr. W. W. Cole, of Elmira, "How Can We Prevent Accidents and Increase the General Efficiency of Employés?"

A paper by Mr. H. S. Newton, entitled "Power from the Trolley Circuit," was then read.

The paper by Mr. J. B. Cahoon on "The Daily Inspection and Care of Car Equipments" followed this.

A paper was then read by Mr. H. S. Cooper, of Schenectady, on "The Desirability of forming a Board of Claim Agents." On motion of Mr. Cole, the subject matter of the paper was referred to the executive committee. The meeting then took a recess.

AFTERNOON SESSION.

The meeting was called to order at 2.15 P. M. The first business was the reading of a paper by Mr. F. O. Rusling, of Rochester, on "The Use of Old Rails as Underground Conductors." There being no discussion on this paper, the meeting proceeded to consider the next paper, entitled "Railway Power Stations," by Mr. Thomas Henning, of Buffalo, N. Y.

Mr. W. J. Clark, of New York, upon invitation of the president, contributed a paper on the general subject of electrical development.

Mr. H. A. Robinson then gave some notes on the management of accident cases as practiced by the Metropolitan Street Railway Company.

Mr. Rossiter: I would like to get some idea of how closely the car mileage is kept up in operation, and what might be called "dead-head mileage," and how they are arrived at.

Mr. Rusling: In Rochester, the mileage record is kept from motormen's cards, every line in the city is figured closely as to its length and each trip is known, as it is reported on the motorman's card as he turns it in at night. The motormen that are taking cars from the different barns to the repair shop make a note of that on a special card for that purpose. We do the same with the special cars. It is a complete system, and we find it comes very close to being a perfect record of every mile run on the road.

The president stated that an invitation had been received from Mr. W. Caryl Ely, president of the Buffalo & Niagara Falls Railroad, to hold the next convention at Niagara Falls; also that an invitation had been received from Saratoga.

On motion of J. P. E. Clark, it was decided to hold the next meeting at Niagara Falls, and that two days be devoted to the meeting.

The president appointed Messrs. Moffitt, Deming and Sliney a nominating committee.

The nominating committee reported, and the following officers were elected for the ensuing year: President, G. Tracy Rogers, Binghamton, N. Y.; first vice-president, W. Caryl Ely, Niagara Falls, N. Y.; second vice-president, John N. Beckley, Rochester, N. Y.; executive committee, H. H. Vreeland, New York, N. Y.; John W. McNamara, Albany, N. Y.; Henry M. Watson, Buffalo, N. Y.; C. L. Rossiter, Brooklyn, N. Y.; secretary and treasurer, H. A. Robinson, New York, N. Y.

On motion of Mr. Moffitt, a vote of thanks was tendered to ex-Secretary Frick, for the able and efficient manner in which he discharged the duties of his office during the past year.

The meeting then adjourned to meet at Niagara Falls the second Tuesday in September, 1897, and the delegates started for a trolley ride to Ross Park, State Hospital and other local points of interest, terminating with a 10-mile ride to Union. Luncheon was served at the Casino.

At the banquet in the evening, at which Mr. J. H. Stedman was toastmaster, the following toasts were responded to:

"City of Binghamton," George E. Green, Mayor.

"Our Hosts—the Binghamton Railroad Company," W. W. Cole.

"Our Lady Riders," Joseph M. Johnson.

"Our Pro and Con Friends—the Lawyers," Hon. Edmund O'Connor.

"Our Dearest Foe and our Warmest Ally—the Press," Col. Sam. Payne.

"Our Friends Who Keep Us Guessing—the Legislature," Hon. C. F. Tupper.

"Children of a Larger Growth—the Steam Railroads," Mr. C. D. Hammond.

## Mr. John Jacob Astor's Electric Yacht "Utopian."

The largest yacht operated by electricity yet constructed was launched at Upper Nyack, N. Y., on September 10, and will be immediately put in commission for cruising by her owner, Mr. John Jacob Astor. Through the courtesy of Mr. George F. Hawkins, who, in the capacity of private secretary, superintended the construction of the yacht, an ELECTRICAL REVIEW representative went aboad of the trim craft just previous to her being christened "Utopian" by the pretty little daughter of President Jewett, of Nyack.

Four hundred and eighty cells of battery are to be installed for the operation of two 25-horse-power motors, built by the Riker Electric Motor Company, of Brooklyn, N. Y. The shafting, screws and motors were in place at the landing, but the batteries are to be put in at Rhinecliff, so as to be near Mr. Astor's electric plant for charging.

The type of battery to be used is one that Mr. Astor has been much interested in, and is known as the Samuels battery. It is said that the installment will carry power for 14 running hours. The yacht is fitted with a unique system of bells, arranged so that the helmsman can signal aft, and will be lighted electrically. Her main dimensions are 72 feet long over all, 12 feet beam and four feet draught.

The main saloon has the full width of the boat, and is 18 feet long and will be handsomely finished in brocaded velvet.

## American Street Railway Association.

The executive committee of the American Street Railway Association met at the office of the president, Mr. H. M. Littell, in the Cable Building, New York city, Tuesday, September 8. There were present Messrs. Littell, Morgan, Kelly, Markle and Penington. The routine business was transacted and preparations made for the convention to be held at St. Louis, October 20. Satisfactory announcement was made that all the floor space set aside for the use of exhibitors at this convention had been contracted for, amounting to some 30,000 square feet. Additional space, however, had been secured, so that all exhibitors could be properly taken care of. The arrangements for transportation from the East, which consist of a special train by the way of the New York Central and another special train by way of the Pennsylvania Railroad, were approved, and Messrs. Vreeland, McGraw and Price were asked to continue as committee in charge. President Littell and Mr. Robinson, of the Metropolitan Street Railway Company, entertained the members of the executive committee, Mr. E. E. Higgins, of the *Street Railway Journal*, and Mr. Charles W. Price, of the ELECTRICAL REVIEW, at luncheon, and in the afternoon took the entire party over the very extensive system of the company. The various power houses proved to be interesting points of observation. In the evening Mr. Higgins gave a dinner to the party at the Reform Club which was highly enjoyed, and the appropriateness of the location for the meeting of street railway men was properly commended. The next meeting of the executive committee will be held at St. Louis, October 19, at the Southern Hotel.

## Plans of the New York & Philadelphia Traction Company.

Operations are at once to be commenced for the construction of three small branches for the proposed electric system between New York and Philadelphia, all of which center at Bound Brook, N. J., and will ultimately be tributary to the main line running through that town. This will mean about 16½ miles of road and will be from Bound Brook to Raritan, Bound Brook to Dunellen and Bound Brook to New Brunswick, covering a territory having a population of 75,000 people. From Dunellen either an extension will be built to Plainfield or the Plainfield road will be extended to Dunellen. At Bound Brook, a power house with a triphase system will be established.

The above facts were furnished to a representative of the ELECTRICAL REVIEW by the attorney for the syndicate in Philadelphia. In answer to the question as to when the main part of the road would be built, the attorney said: "It will depend entirely on the success of the first portions of the road when the remainder will be constructed."

"Do you care to say what charters and franchises you have?" was asked. The attorney said, "Franchises from Dunellen through Princeton to Trenton have been granted and a charter for a franchise through Pennsylvania to Philadelphia has been given."

The plan at present is to have the usual street railway equipments with no facilities for interurban through transit.

## Walter Greer Campbell Said To Be a Swindler.

The following dispatch from Chicago, on September 10, appeared in the New York *Herald:*

Walter Greer Campbell, a plausible and engaging young man, who is said to be known in New York, Boston, San Francisco, St. Louis and other cities as the promoter of an electrical process of smelting iron ore, is wanted in Chicago.

Calvin A. Poage, of the Mill Creek Placer Mining Company, of California, with offices in Chicago, swore out a warrant for Campbell's arrest to-day.

Here are some of the men who admit they would like to see Campbell and the amounts they would be satisfied to get from him: Calvin A. Poage, $7,000; C. R. Palmer, $10,000; C. D. Peacock & Co., $1,100; Mr. Gamble, a stock broker, $3,000; Hiram J. Thompson, $6,000; Commercial Loan and Trust Company, $6,000; Dr. Robert Good, $250; Plaza Hotel, New York, $300; H. W. Phelps, Lewiston, Ill., the price of $100,000 of Illinois Electrical Forging Company stock.

Campbell came here from Boston in 1893, and established a smelting plant in the Fair Grounds. He did not succeed financially, and left the settlement of his affairs in the hands of his local backer. After leaving here he was heard of in other large money and mining centers, always explaining the beauties of a secret process for rendering iron ore at a cost of $1 a ton. He returned to Chicago in June, left a few days later to marry a woman of good family in Toronto, but came back to renew his negotiations for the sale of his smelting stock. Finally he dropped out of sight on Monday, three weeks ago. The warrant for his arrest was issued by Justice Underwood.

Inquiry among electrical men developed the fact that Campbell is unknown to the fraternity in New York city.

## KIND WORDS.

"JUST GRAND."

TO THE EDITOR OF ELECTRICAL REVIEW:

The ELECTRICAL REVIEW I consider the best paper published in the interest of electricity and its appliances, and well worthy of patronage by persons interested in electricity and its machinery. Many of the articles are just grand.

S. B. FLUKE.

Woodbury, Pa., September 9.

AN INSTRUCTIVE MAGAZINE.

TO THE EDITOR OF ELECTRICAL REVIEW:

I have enjoyed the ELECTRICAL REVIEW very much and think it very useful to every one in the electrical business and an instructive magazine to have, and one they can hardly afford to do without.

F. L. STEWART.

Cattaraugus, N. Y., September 8.

### How Edison Works and Rests.

Thomas A. Edison went up to Lake Chautauqua, N. Y., last week to bring home his family who had been spending their vacation at that place. On his way home Edison stopped in Buffalo and was interviewed, in part as follows, by a reporter for the Buffalo *Express:*

"Have you been taking a rest?" was the first question asked of Mr. Edison.

"No, no," laughed the inventor. "What do I want of a rest? I never rest; what's the use of it?"

The *Express* man agreed that a rest was not needful to Mr. Edison's robust appearance, and he asked the following:

"Don't you ever rest?"

"Well that depends on what you mean by rest. I sleep, of course, but I hardly ever go on a vacation. My family go on vacations and I go after them."

"What are you devoting your efforts to just now?"

"Oh 20 or 30 things. I always have that many things in prospect. I am striving to make a contrivance whereby I can use a phonograph and a vitascope in conjunction. This will make a regulation-sized theatrical production, with the scenes, acting and speaking. The kinetoscope was one step toward this, the vitascope was the next, and now I hope soon to have the climax. I have it about completed; but not quite so."

It was noticeable that the inventor pronounced vitascope "veetascope," which he says is correct.

"Have you completed your autographic system of telegraphy?"

"I have it completed, but it is not now in use. I expect it will be utilized for newspaper work and not for general telegraphy."

"Have you anything in prospect which, when introduced, will be revolutionizing?"

Mr. Edison laughed, snapped the ashes off his cigar and answered:

"The public doesn't like wind; it likes realities. I never like to tell what I may do, but when I have it done I am willing to discuss it. We are getting wind enough from the free-silver men, aren't we?"

"Have you had any dealing with Li Hung Chang during his present visit here?" was asked by the reporter.

"None whatever. Li Hung Chang telegraphed from New York to my Orange office that I meet him at Niagara Falls. The telegram was forwarded to me, but I did not comply with it. I couldn't leave my family alone. I have no idea what he desired to see me about."

"Did any of your representatives meet him?"

"No."

"Have you scruples against discussing your personal habits?"

"Scruples, no!" declared Mr. Edison, half-laughingly and with feigned amazement. "I have had too much experience with newspaper men to be modest. I am 49 years old, was formerly a telegraph operator and have been an inventor for 32 years."

Mr. Edison laughed and asked, "Is there anything else you desire to know?"

"How much do you sleep a day?"

"I can't estimate it. Some days I don't sleep; other days I sleep nearly all the time."

"Is it a fact that you work sometimes for 40 hours without sleep?"

"Yes, yes; sometimes I go 70 hours without sleep. Very often I go 48 and 50 and not infrequently 60 and 70."

"You eat regularly meanwhile?"

"Yes, my meals are brought to me."

"Do you have trouble ever sleeping?"

"No, never. I can sleep anywhere, at any time at a minute's notice. If I had trouble sleeping, I could not get along in my business. I very often take a few minutes' sleep for a bit of refreshment."

"Do you take long naps after a 70-hour siege?"

"Sometimes I sleep 18 hours without waking. Sometimes I sleep but six or eight."

"Do you feel any bad effects from this irregularity?"

"None. I am perfectly well, always have been, and it looks now as if I always would be. I fear if I should become too regular it would have bad effects on me. People who claim to be regular in their habits are broken up by a day or two of irregularity. I, who am irregular all the time, have no such trouble."

"Does not the constant thinking have a weakening effect on you?"

"Certainly not. It is not hard work. It requires no physical exertion. It is a pleasure. I like it, and what one likes is never tiring. I always feel well. The papers in New York recently had me broken down in health and seeking a place of rest. You can see the falsity of those statements."

"Do you think there is a limit to the possibility of electricity?"

Mr. Edison hesitated a moment, winked one eye, as is his habit when he is deliberating, and answered:

"No, I do not. Electricity will accomplish great things in the near future. The improvements of the next 20 years will, in my opinion, be as great as have been those of the last 20. They will not be so amazing, because they will not strike us as having been so nearly impossible. Nothing now seems to be too great for the people to comprehend."

"Will electricity supplant steam on the railways?"

"It will, yes, but just when I can not predict. It will do so on many of the shorter lines right along now, but on the trunk lines, not for some time—or until the electricians get what to them is the philosopher's stone; that is, generating electricity direct from coal. This is what all electricians are striving for now."

"Are you working on it?" was asked of the inventor.

"I have been working on it for several years."

"Do you expect to make the discovery?"

"There you are again," laughed Mr. Edison. "I really can't say; but I will say that the problem is a baffling one."

### Illustrated Lecture on Roentgen Rays.

Friday evening, September 25, a lecture will be given in Association Hall, Fourth avenue and Twenty-third street, New York city, by Mr. Max Osterberg, E. E., A. M., on "The Possibilities and Limitations of the Roentgen Rays." Mr. Osterberg, who is well-known as an electrical expert, is the instructor in the evening class in electrical engineering at the Twenty-third street branch of the Young Men's Christian Association, and has kindly volunteered his services for this lecture. The proceeds will be devoted to securing apparatus with which to illustrate the instruction in the classroom. Besides exhibiting and explaining the Roentgen-ray apparatus, Mr. Osterberg will illustrate his lecture throughout with a stereopticon lantern.

### Kildischewsky's "Long-Distance" Telephone.

According to a press dispatch the London *Daily News* published on September 9 a dispatch from Odessa, Russia, saying that M. Kildischewsky, an electrician, has discovered an improvement in the telephone by the use of which distance has no effect upon the hearing. In a recent experiment between Moscow and Rostoff on the Don, a distance of 890 miles, talking, music and singing were heard with perfect distinctness. An ordinary telegraph wire was used. The dispatch adds that M. Kildischewsky will go to London to experiment with his improvement on the Atlantic cables between London and New York.

When Mr. J. J. Carty, engineer for the New York Telephone Company, was shown the above by a representative of the ELECTRICAL REVIEW, he said:

"Who is Kildischewsky? I do not believe he is known to American engineers. It is not clear whether he used one or two wires in talking 890 miles, from Moscow to Rostoff. Our long-distance telephones in this country have accomplished a good deal more than this, and accomplish it every day in the week. There is nothing new in telephoning over telegraph wires. That has been done several times in the past. As to submarine telephony, we shall, I believe, have it across the Atlantic some day. But at present the only successful operations of the sort are such as those lines from Liverpool to Ireland and across the British Channel, 26 miles. These are samples of what has and can be done. But the best opinion on the subject is that the desired result will be accomplished, not by improvements in the transmitter and receiver, but by improvements in the cable."

### Western Union Telegraph Company.

At a meeting of the Board of Directors of the Western Union Telegraph Company, held in New York city on September 9, there was a unanimous approval of the recommendation of the Executive Committee, that a dividend of one and one-quarter per cent be paid October 15. A financial statement (partly estimated) for the quarter ending September 30, 1896, was issued as follows: Net revenues, $1,600,000, a decrease of $242,648; interest and sinking funds, $243,500; balance, $1,356,500; dividends, $1,191,000; surplus, $164,540; previous surplus, $7,643,693; total surplus, $7,808,233. The annual meeting of the stockholders will be held October 15.

### What! Interest To Be Paid in Coal?

[*From the Boston Post.*]

It is said that the General Electric Company has a sufficient amount of coal on hand to pay out at least two-thirds of the accumulated interest on the preferred stock, which now amounts to about 21 per cent.

### A Gas Exhibition.

For two weeks, beginning January 25, 1897, there will be held in Madison Square Garden, New York city, an exhibition of gas apparatus and appliances. It is the first affair of the kind attempted in this country. In a number of European countries gas exhibitions are a regular feature of each year's entertainments. At the present Berlin exhibition the gas building is said to be one of the most pleasing and at the same time a very interesting exhibit. The New York affair will be managed by a board of directors, assisted by an executive committee. Among the names are those of men familiar to the commercial and financial world.

The executive committee will come in more direct touch with exhibitors. As appointed that body consists of the following gentlemen: E. C. Brown, chairman; W. H. Bradley, chief engineer Consolidated Gas Company, of New York; Col. W. E. Barrows, president Welsbach Light Company; Walton Clark, general superintendent United Gas Improvement Company, Philadelphia; Emerson McMillin, president of the gas companies of St. Louis, Milwaukee, Columbus, Ohio, and Grand Rapids, Mich.

The offices for the present will be located at 280 Broadway, rooms 237-8, where application may be made for information of any character relating to the exposition.

### A Deserved Compliment to New York's Telephone Service.

The business of the New York Telephone Company, of which Mr. U. N. Bethell is general manager, has not only increased in a marvelous degree since the first of January last, but is so marked in its improvement as to be worthy of public notice. Like everything else, the public had to grow into a knowledge of telephone manipulation, and now that user and used are acquainted, each with the other, the general result is of a much better type than in olden days.—*Howard in New York Recorder.*

### Mica Has Many Electrical Uses.

TO THE EDITOR OF ELECTRICAL REVIEW:

I have a mica mine and desire to operate it. Will you please tell me for what other purposes mica is used besides stoves? Can the small pieces be ground up and used for any purpose? What is the best way of cleaning the dirt out of mica? Kindly reply and oblige. Yours truly,

W. C. C.

Baltimore, Md., September 7.

### Suicide by Dynamite and Electricity.

A man in Webster City, Iowa, lay down in bed, placed a stick of dynamite under his pillow, attached an electric battery and touched the button. He not only killed himself but wrecked the house. A man possessed of such perverted ingenuity deserves no better fate than success in his scheme.

## ADVANCE INFORMATION

**Valuable News and Tips for Manufacturers and Dealers.**

**We publish below information relating to new electric railways, new electric light companies, new telephone companies and projected electric construction of all kinds. Every reader will find these columns of special interest, and manufacturers and supply houses will receive many valuable suggestions looking to new business by carefully watching this department in the ELECTRICAL REVIEW.**

### Electric Light and Power.

NEW YORK, N. Y.—A certificate of the consolidation of the Manhattan Electric Light Company, Limited, and the Madison Square Light Company, forming the Manhattan Electric Light Company, has been filed with the Secretary of State; capital, $1,500,000. Directors, R. B. Bowker, E. A. Leslie, H. M. Edwards and C. S. Shepard, of Brooklyn, and Frank Enos, of Englewood, N. J.

CHICAGO, ILL.—Geneva Electric Lighting Works has been incorporated; capital stock, $10,000. Incorporators, C. M. Sechner, J. H. Brown and B. O. Mayer.

ALBANY, N. Y.—The Richmond County Electric Light Company, to operate in the cities, villages and towns of Richmond County; capital, $200,000. Directors, Edward P. Doyle, of Northfield, S. I.; George B. M. Harvey, John P. O'Brien, of New York city; Arthur D. Chandler, of Orange, N. J., and John E. Comins, of Arlington, N. J.

DENVER, COLO.—The Victor Illuminating and Power Company has been incorporated by Frank Strong, Robert G. Killen and Moses L. Stern. Capital stock, $100,000.

SAN FRANCISCO, CAL.—Pacific Coast Gas, Light and Fuel Company has been incorporated by S. W. Van Syckle, W. B. Morris, Harvey J. Lewelling, Eli Lewelling, T. W. Nowlin; to operate gas works and sell gas and electricity for light and fuel and engage in general power business. Capital stock, $500,000.

GEORGETOWN, MASS.—Steps are being taken to form an electric light company.

PITTSFIELD, MASS.—The Board of Trade can give information concerning the establishment of an electric light plant.

PORTLAND, ME.—The Maine Eye and Ear Infirmary will erect an electric power plant adjoining the Infirmary building.

PROVIDENCE, R. I.—City Clerk can give information concerning probable construction of municipal lighting plant.

ROSSVILLE, GA.—The Park Mills will erect an electric light and power plant.

VALLEJO, CAL.—K. Caspar has been awarded franchise to erect and operate a system of arc and incandescent electric lighting.

GENEVA, ILL.—The Seckner Contracting Company, Unity Building, Chicago, has been awarded contract for constructing a $13,375 electric light plant at Geneva.

NEENAH, WIS.—Neenah & Menosha Water Power Company has been incorporated by W. Z. Stuart, of Appleton, Wis.

MONTEREY, CAL.—An electric plant is to be placed at the Little Sur River, 24 miles down the coast from Monterey. Surveyors are now making a final survey.

SANTA MONICA, CAL.—The Santa Monica Electric and Power Company will sell its lighting and power plant to the city for $35,000.

LINSTON, N. C.—City Clerk may be addressed concerning purchase of electric light plant. Will want complete equipment.

SAN FRANCISCO, CAL.—Peninsula Lighting Company has been incorporated by John L. Howard, Oakland; O. Ellsworth, Edwin Fish, T. F Laist, of San Francisco. Capital stock, $200,000.

DENVER, COLO.—Frank Arbuckle Company will erect electric light plant at Barnum.

MINNEAPOLIS, MINN.—The North Star Shoe Company is having plans prepared for an electric lighting plant.

MADISON, WIS.—City Clerk may be addressed for information concerning erection of an electric lighting plant.

CROSWELL, MICH.—Croswell Electric Light Company has been incorporated with a capital stock of $10,000.

CAMDEN, N. J.—Provident Electric Light and Power Company has been incorporated by Aaron F. Stull, Elisha W. Meloney and Samuel Peoples. Capital stock, $50,000.

### New Electric Railways.

WARREN, OHIO—It is reported that parties are at work getting the right of way for a new electric line from Niles to Leavittsburg and Ravenna. At the latter place it will connect with the Walsh line to Akron and will give the Mahoning Valley connection with Cleveland.

RACINE, WIS.—The contract for grading the road-bed of the Racine & South Milwaukee Electric Railway, which will connect with the Milwaukee Electric Railway and Light Company's tracks, has been let to Whalen & Williams, of South Milwaukee. The road will be in operation before the end of the year.

PATCHOGUE, N. Y.—The Patchogue & Port Jefferson Traction Company has applied for permission to build a railway from this place to Port Jefferson, which will run through Waverly, Seider and Terryville.

GARDNER, MASS.—The electric road from this place to Fitchburg, through Westminster, has resulted in the announcement of the formation of a corporation to be known as the Gardner, Westminster & Fitchburg Electric Railway Company, with a capital stock of $100,000. The subscribers are F. S. Coolidge and H. A. Goodrich, of Fitchburg; E. F. Blodgett, H. L. Pierce. G. R. Damon, C. H. Howe, C. E. Dresser, W. S. Reed and Hamilton Mayo, of Leominster; J. A. Stiles and Charles Heywood, of Gardner; Herbert Carter, of Springfield; F. E. Lowe and H. C. Garfield, of Greenfield; F. E. Bolton, of Westminster.

BIRMINGHAM, PA.—Contracts for the Brownsville avenue street railway of the Birmingham Traction Company have been let to Booth & Flinn and Sloan, McIlwain & Ott Bros. The work will cost over $300,000.

HOLBROOK, MASS.—Superintendent Brooks, of the Braintree & Weymouth road, is interested in proposed construction of street railway to South Weymouth.

HAVERHILL, MASS.—A petition has been presented for the extension of the electric railway beyond the present terminus on Hillsdale avenue, and is meeting with success.

ROCKVILLE, CT.—The trolley line from Springfield is to be extended to Warehouse Point.

RICHMOND, VA.—City Clerk may give information concerning construction of electric street railway, by the Richmond Traction Company, which has been granted permission to build and operate a double-tracked electric street railway from Broad street to Hollywood Cemetery.

HAMILTON, ONT.—The Hamilton, Checoke & Ancaster Electric Railway Company will build an electric road from Hamilton to Ancaster, by way of Beckett Mountain, at a cost of $40,000.

GLOUCESTER, MASS.—Essex County Street Railway Company will construct an electric road which will connect the Newburyport & Amesbury road with the new road at Ipswich, and which will also connect with a branch to Georgetown and Rowley.

SYRACUSE, N. Y.—The Onondaga Lake Electric Railway Company, which was recently granted franchise, has forfeited same on account of its non-compliance with its provisions, which were to the effect that the road would be in operation by October 1. At a meeting of the Common Council an application asking for an extension of time was denied.

ARLINGTON, N. J.—The Union Traction Company proposes constructing a trolley system between this place and Hackensack, N. J.

### New Telephone and Telegraph Companies.

ALBION, N. Y.—Citizens' Telephone Company has been incorporated by Geo. T. S. Foote, A. C. Burrows, P. W. Collins, of Albion, and others; to conduct a telephone business. Capital stock, $5,000.

KITTANNING, PA.—Kittanning Telephone Company has been incorporated with R. P. Marshall, treasurer. Capital stock, $4,000.

CORTLAND, N. Y.—The Village Board of Trustees have granted a franchise to the Western Telephone Construction Company, of Chicago, allowing the company to operate telephone lines in the village.

SYRACUSE, N. Y.—The certificate of incorporation of the Central City Telephone and Telegraph Company has been filed in the County Clerk's office. The purpose of the company is to erect and operate lines in Onondaga County. The capital stock is $100,000. The directors are Eugene Hughes, John T. Gaynor, William B. Kirk, Anson E. Alvord, Hamilton S. White, Bruce S. Aldrich and Louis L. Waters.

ELM GROVE, W. VA.—The Central District Printing and Telegraph Company are preparing to establish a new telephone station at this place.

### Business Troubles.

CHATTANOOGA, TENN.—The Chattanooga Electric Railway Company; J. B. Ragan has been appointed temporary receiver.

COLUMBUS, OHIO—The Columbus Central Street Railway Company has gone into the hands of a receiver, George H. Worthington. The company is capitalized at $1,500,000, and is bonded for that amount.

INDIANAPOLIS, IND.—McCurdy & Smith, electricians at 94 North Meridian street, have assigned to Charles S. Tarleton for the benefit of creditors.

CLEVELAND, OHIO—The Snyder Electrical Company has assigned.

FORT WAYNE, IND.—The Consolidated Electric Railway Company, of this city, has passed into the hands of a receiver.

### New Manufacturing Companies.

SEATTLE, WASH.—Electrical Reduction Company has been incorporated by C. P. Tatro, A. F. Nichols, L. B. Stedman and B. A. Knapp. Capital stock, $300,000.

SHELBY, OHIO—Shelby Electric Company has been incorporated by W. W. Skiles, C. M. Skiles, M. H. Davis, Jonas Feighner and J. C. Fish. Capital stock, $100,000.

### Dale, Farrell & Company in a Receiver's Hands.

Arthur Sweeny has been appointed receiver of Dale, Farrell & Company, dealers in electrical supplies, 413 and 415 East Twenty-third street, New York city, in proceedings brought by Peter B. Sweeny, one of the partners, against John H. Dale and Philip Farrell, the other partners, for a dissolution of the firm. The assets are placed at $15,000 and the liabilities at $11,000 outside of the amount due Mr. Sweeny, who is said to have started the firm in business. Mr. Sweeny put in $5,000 cash capital when the firm was organized, on March 11, 1895, and has since loaned other money to the firm.

**John Starr, Son & Company, Limited,** 134 Granville street, Halifax, Nova Scotia, have issued a very creditable illustrated catalogue of electrical specialties and supplies.

**The Long-Distance Electric Typograph Company,** of St. Louis, has issued a pamphlet entitled, "A Few Words on the Long-Distance Electric Typography." It gives a description of the Reifgraber device recently mentioned in the ELECTRICAL REVIEW.

**The Electric Appliance Company,** Chicago, are making a large number of sales on their new telephone switchboard, which seems in every way to be a winner. It has a number of very desirable features exclusively its own, and is in every way a practical and serviceable board.

**The Utica Electrical Supply and Manufacturing Company,** of Utica, N. Y., has in hand a large number of contracts for electric lighting plants. At present they are installing one 800 and one 400 Eddy dynamos for the Rome, N. Y., State Custodial Asylum; a 250-light plant complete for the Hornellsville, N. Y., Marble Company; a 500-light plant for the Utica, N. Y., Knitting Company; a three-wire switchboard for the village plant at Groton, N. Y.; a switchboard for the lighting company at Old Forge, N. Y.; a 500-light plant for W. H. Hackett & Company, Utica, N. Y., and a 300-light plant for Y. Drych, Utica, N. Y.

**The Clonbrock Steam Boiler Company,** Brooklyn, N. Y., manufacturers of the well known Morrin Climax boilers, are working their plant with a full force of men and will be compelled to put on a night force to complete by January 1, 1897, the many contracts they have on hand. Among the recent installations made by this company are the following: The American Manufacturing Company, Brooklyn, N. Y., 500 horse-power; Hazleton Light Company, Hazleton, Pa., 800 horse-power; People's Light and Power Company, Jersey City, N. J., 1,800 horse-power; Municipal Electric Light Company, Brooklyn, N. Y., 2,000 horse-power, and one steel self-supporting smoke-stack 16 feet diameter and 175 feet high; Economy Light, Heat and Power Company, Scranton, Pa., 1,000 horse-power; Johnson Coal Company, Priceburg, Pa., 400 horse-power; Marshall Paper Company, Turner's Falls, Mass., 150 horse-power; People's Light and Power Company, Orange, N. J., 1,200 horse-power; Geo. Watkinson Rubber Works, Philadelphia, Pa., 250 horse-power; Esperanza Plantation, Bayou Lapourche, La., 600 horse-power; Mathieson Alkali Works, Providence, R. I., 300 horse-power; Brush Electric Company, Providence, R. I., 300 horse-power; New York Steam Company, new station, New York city, 3,000 horse-power; Brush Electric Company, Baltimore, Md., 1,000 horse-power; Coney Island & Brooklyn Railroad Company, Brooklyn, N. Y., 700 horse-power.


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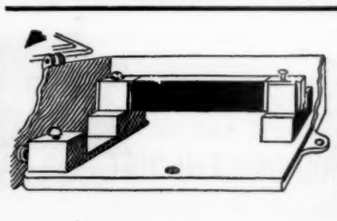

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# ELECTRICAL PATENTS

[Specially reported for this journal by E. S. Duvall, solicitor of patents, Loan and Trust Building, Washington, D. C. Copies of any patent may be secured for 10 cents each.]

ISSUED SEPTEMBER 8, 1896.

567,132 Telephone transmitter; R. P. Green, Columbus, Ohio.

567,133 Trolley wire crossing; H. M. Hanshy, San Antonio, Tex.

567,137 Automatic circuit-breaker; E. M. Hewlett, Schenectady, N. Y.—A blow-out magnet, a core for the magnet, a U-shaped piece extending parallel to the core and separated therefrom, a plate forming a support for the U-shaped piece, a second plate of magnetic material secured to the core of the magnet, and switch-contacts between the plates.

567,156 Electric lock; W. S. Nash, Knoxville, Tenn.—A latch-bar, or bolt, and a lock-bar, or under-bolt, interlocking therewith, a spring-impelled dog engaging the lock-bar, a device for operating said dog and an electro-magnet for releasing the device, whereby the dog may be disengaged from the lock-bar and the lock be released.

567,176 Contact device for electric burglar alarms; P. Unger, Lemont, Ill.

567,186 Trolley wire and trolley wheel; P. Cassidy, Worcester, Mass.—A trolley wire comprising a substantially cylindrical rib or bead, and a tapering V-shaped body portion for engaging the trolley wheel, the rib and body portions of the wire being separated by V-shaped grooves arranged to engage supporting clips or fasteners.

567,197 Constant potential alternating generator; E. W. Rice, Schenectady, N. Y.—An alternating-current, dynamo-electric machine, a transformer having a primary coil in shunt to the mains, a secondary and a modifying magnetic shunt and a rotary converter connected upon its alternating-current side to the transformer secondary, and upon its other side to the field magnets of the alternator.

567,211 Electrical train signaling device; J. E. Young, Conneaut, Ohio.

567,223 Rheostat; W. W. Dean, St. Louis, Mo.—Consists of a non-combustible core, a resistance wire, a non-combustible flexible envelope, metal clips, a base and springs.

567,227 Electric arc lamp; E. F. G. Faure, Schenectady, N. Y.—A focusing arc lamp, a plurality of feed-screws having the same pitch, gearing to vary the rate of speed between the screws, and means for moving one screw longitudinally with respect to the other.

567,237 Electrical transformer; H. M. Hobart, Boston, Mass.

567,247 567,248 Electric heater; J. E. Meek, New York, N. Y.

567,250 Electrical transformer. W. S. Moody, Lynn, Mass.—Consists of a built-up core, having its sides composed of bundles of metallic laminæ with over-lapping ends, and its ends composed of bundles of metallic laminæ breaking joint with the sides, shellaced fiber paper wrapped around the side laminæ, insulating pins securing the latter together, and windings about the sides of the core.

567,256 Electric type-setting machine. J. Sachs, New York, N. Y.—Consists of a back plate at the point where the type channels converge, a gate arranged to be vibrated, an electro-magnet placed in a suitable circuit, an armature on the magnet which continuously vibrates the vibrating gate, when the magnet is energized, and an interrupter in the circuit, whereby a continuous vibratory movement is given to the armature and the gate vibrated.

567,257 Electric rail bond; G. H. Scott, Worcester, Mass.

567,306 Electric railway trolley; R. N. Dyer, East Orange, N. J.—An upward pressure trolley, a solenoid and core for moving the trolley upwardly, and a multiplying gear connecting the solenoid core with the trolley.

567,307 Electric railway trolley; R. N. Dyer, East Orange, N. J.—An upward pressure trolley, an electro-dynamic motor for lifting the trolley, and a speed-reducing gearing connecting the motor and trolley.

567,322 Safety device for hanging electric arc lamps; E. P. Snowden, St. Joseph, Mo.

567,324 Telephone transmitter; A. Stromberg, Chicago, Ill.

567,325 Telautograph; G. S. Tiffany, Highland Park, Ill.

567,338 Electrical signal lamp; J. R. Farmer, St. Louis, Mo.

567,366 Governor for regulating speed of machinery; E. Thunderbolt, Carlton, Victoria.

567,381 Magnetic separator; R. Eickemeyer, Yonkers, N. Y.—Consists of a rotative drum provided with longitudinal separating bars of iron, and an interior stationary electro-magnet having a series of cores, segmental in form and each inclosed longitudinally by its own winding or field coil.

567,382 Magnetic separator; R. Eickemeyer, Yonkers, N. Y.

567,384 Machine for hermetically sealing metal boxes; J. Gersant, Deal, England.

567,404 Apparatus for telephone switchboards; F. R. McBerty, Downer's Grove, Ill.

567,411 Trolley; E. D. Priest, Schenectady, N. Y.—A vehicle, an overhead conductor, a contact device carried thereby, a lazy-tongs connection between the contact device and vehicle, gears mounted on the base and secured to the lazy-tongs, and intermediate gears for imparting corresponding movements to the arms.

567,416 Insulated rail joint; R. C. Schofield, Boonton, Newark, N. J.—A rail-joint comprising insulating coupling-blocks at the sides of the rails, and a bed-plate for the rail ends having an upwardly extending rib on one side only.

567,423 Dynamo-electric machine; R. Thury, Geneva, Switzerland.

567,424 Transformer for electric currents; R. Thury, Geneva, Switzerland.

567,474 Trolley for electric cars; J. E. Hewes, Philadelphia, Pa.

567,517 Electric railroad; C. Sill, New York, N. Y.—Comprises switches provided with insulation, consisting of tubes and alternating layers of cement, the said layers and tubes arranged one within the other.

567,531 Holder for electric lamps; W. S. Arnold, San Francisco, Cal.

567,550 Swing for electric light or telephone brackets; A. Petereit, New York, N. Y.

567,560 Motor mounting and driving mechanism; E. J. Bagnall, Cleveland, Ohio.

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REFERENCES: "Electrical Review," New York; Paul Cromlein, Teller Lincoln National Bank, Washington, D. C.; Judge Geo. D. Parker, Berkley, Va.; Second National Bank, Washington, D. C.; E. K. Leech, U. S. Mint, Philadelphia, Pa.; W. F. Newell, Manager and Secretary Water Works, Olympia, Oregon.

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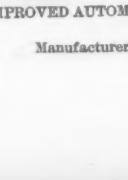

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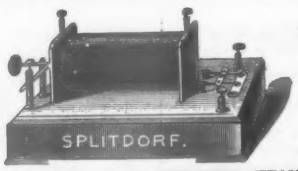


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a time to grin.

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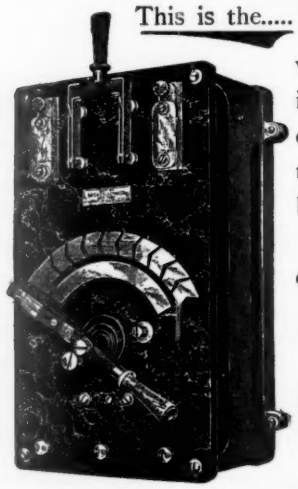

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